2528

DOE ORDER 5820.2A, "RADIOACTIVE WASTE MANAGEMENT"

09-26-1988

DOE/XX
DOE 5820.2A
50
DOE ORDER

UNCONTROLLED COPY

U.S. Department of Energy

Washington, D.C.

2528 **ORDER**

DOE 5820.2A

9-26-88

SUBJECT RADIOACTIVE WASTE MANAGEMENT

1. PURPOSE. To establish policies, guidelines, and minimum requirements by which the Department of Energy (DOE) manages its radioactive and mixed waste and contaminated facilities.

2. CANCELLATION. DOE 5820.2, RADIOACTIVE WASTE MANAGEMENT OF 2-6-84.

3. SCOPE. The provisions of this Order apply to all DOE elements and, as required by law and/or contract and as implemented by the appropriate contracting officer, all DOE contractors and subcontractors performing work that involves management of waste containing radioactivity and/or radioactively contaminated facilities for DOE under the Atomic Energy Act of 1954, as amended (Public Law 83-703).

4. EXCLUSION. This Order does not apply to the management by the Department of commercially generated spent nuclear fuel or high-level radioactive waste, nor to the geologic disposal of high-level waste produced by the Department's activities and operations. Such materials are managed by the Office of Civilian Radioactive Waste Management under the requirements of the Nuclear Waste Policy Act of 1982, as amended (Public Law 97-425).

5. POLICY. Radioactive and mixed wastes shall be managed in a manner that assures protection of the health and safety of the public, DOE, and contractor employees, and the environment. The generation, treatment, storage, transportation, and/or disposal of radioactive wastes, and the other pollutants or hazardous substances they contain, shall be accomplished in a manner that minimizes the generation of such wastes across program office functions and complies with all applicable Federal, State, and local environmental, safety, and health laws and regulations and DOE requirements.

6. REFERENCES. (See Attachment 1.)

7. DEFINITIONS. (See Attachment 2.)

8. RESPONSIBILITIES.

   a. Assistant Secretary for Defense Programs (DP-1) has authority for establishing policy for the management of DOE waste and assuring that DOE waste generated by operations and activities under DP-1 cognizance, or any other waste within the purview of DP-1, is managed according to the requirements of this Order. DP-1 also has general responsibility for assuring that

DISTRIBUTION:

All Departmental Elements

INITIATED BY:

Office of Defense Waste and Transportation Management

DP-1 programmatic decisions include waste management considerations when appropriate. Specific responsibilities include:

(1) Assuring the safe storage and disposal of all DOE waste other than that managed by NE-1 and RW-1;

(2) Implementing new and alternative technologies and processes to improve management of DP waste;

(3) Developing and operating the Waste Isolation Pilot Plant, a facility near Carlsbad, New Mexico, for conducting research and development to demonstrate the safe disposal of radioactive waste from defense activities and programs of the United States exempted from regulation by the Nuclear Regulatory Commission;

(4) Conducting research and development for DOE waste transportation systems and providing for safe, efficient, and economic transport of materials, pursuant to DOE 1540.1;

(5) Managing DP contaminated facilities, including those that are surplus to program needs;

(6) Assuring that the environmental, safety, health, transportation, quality assurance, unusual occurrence, construction project management, real estate management, and facility design requirements set forth in DOE Orders are implemented for DP-1 waste management programs; and

(7) Supporting the information needs of the Integrated Data Base program on defense program activities and jointly managing and funding the program in cooperation with NE-1 and RW-1 (see Attachment 1, page 3, paragraph 23).

b. Director of Defense Waste and Transportation Management (DP-12) is charged with carrying out DP-1 waste management responsibilities for oversight of the waste management complex, for interpreting waste management policy, and for implementing the requirements of this Order for waste management facilities and operations funded by DP-12. Specific responsibilities include:

(1) Management of storage, treatment, and disposal operations for defense waste;

(2) Managing defense contaminated facilities that are excess to programmatic needs;

(3) Reviewing and approving new or alternative waste management practices;

(4) Conducting research and development for DOE waste transportation systems and providing for safe, efficient, and economic transport of materials, pursuant to DOE 1540.1;

(5) Conducting independent health, safety, and quality assurance audits of field waste management organizations, in cooperation with EH-1, to assess compliance with the requirements of this Order;

(6) Issuing, in consultation with EH-1, approval of exemptions from the requirements of this Order (paragraph 9) that are proposed by other Headquarters or field organizations;

(7) Issuing in consultation with EH-1 and Headquarters program organizations updated waste management guidance; and

(8) Approving documents, reports, and plans, as required by this Order, for DP programs and activities.

c. Director of Civilian Radioactive Waste Management (RW-1) is responsible for selected research and development, siting, construction, operation, and management activities assigned to the Secretary of Energy by the Nuclear Waste Policy Act of 1982 (Public Law 97-425) for the interim storage and disposal of high-level waste and spent nuclear fuel. Specific responsibilities include the following:

(1) The long-term care, in cooperation with NE-1, of closed commercial low-level waste sites transferred to DOE;

(2) Lead responsibility, in cooperation with NE-1 and DP-1, for the Integrated Data Base program (see Attachment 1, page 3, paragraph 23);

(3) Assurance that the requirements of DOE Orders are met for all waste management activities under RW-1 purview; and

(4) Independent health, safety, and quality assurance audits of field waste management organizations in cooperation with EH-1, to assess compliance with the requirements of this Order.

d. Assistant Secretary for Nuclear Energy (NE-1) is responsible for assuring that waste generated by operations funded by NE-1 is managed according to the requirements of this Order and that NE-1 program decisions include waste management considerations, as appropriate. Specific responsibilities include:

(1) Managing DOE wastes from NE-1 operations and activities, including the breeder reactor, space nuclear, naval reactor, and remedial action programs, as well as the Three Mile Island and West Valley projects;

(2) Managing waste generated by DOE enrichment operations and disposed at sites located at the Oak Ridge, Portsmouth, and Paducah gaseous diffusion plants;

(3) Managing any greater than Class C low-level waste, as defined in Section 3(b)(1)(D) of Public Law 99-240, which may be accepted by the Department for disposal in cooperation with DP-1;

(4) Developing and implementing alternative technologies and processes to support storage and disposal of waste or spent fuel generated by NE-1 operations;

(5) Managing NE-1 contaminated facilities, including those that are surplus to program needs, and waste storage/disposal sites;

(6) Developing and implementing commercial applications for waste byproducts;

(7) Assuring that environmental, safety, health, transportation, quality assurance, unusual occurrence, construction project management, real estate management, and facility design requirements set forth in DOE Orders, are implemented for NE-1 waste management programs;

(8) Conducting independent health, safety, and quality assurance audits of field waste management operations in cooperation with EH-1 to assess compliance with the requirements of this Order; and

(9) Supporting the information needs of the Integrated Data Base program on civilian nuclear program activities in cooperation with DP-1 and RW-1 (see Attachment 1, page 3, paragraph 23).

e. Assistant Secretary for Environment, Safety and Health (EH-1) is responsible for providing an independent overview of DOE radioactive waste management and decommissioning programs to determine compliance with DOE environment, safety, and health requirements and applicable Environmental Protection Agency (EPA) and state regulations. Specific responsibilities include:

(1) Advising the Secretary of the status of Departmental compliance with the requirements of this Order and applicable provisions of DOE 5480.1B, and EH Orders.

(2) Conducting independent appraisals and audits of DOE waste management and decommissioning programs consistent with the requirements of DOE 5482.1B.

(3) Reviewing site Waste Management Plans and Decommissioning Project Plans with regard to compliance with DOE environment, safety, and health requirements.

f. Director, Naval Nuclear Propulsion Program: Executive Order 12344, statutorily prescribed by PL 98-525 (42 USC 7158 note), establishes the responsibilities and authority of the Director, Naval Nuclear Propulsion Program (who is also the Deputy Assistant Secretary for Naval Reactors within the Department) over all facilities and activities which comprise the Program, a joint Navy-DOE organization. The policy principle promoted by these executive and legislative actions is cited in the Executive Order as "...preserving the basic structure, policies and practices developed for this Program in the past...". Accordingly, The Naval Propulsion Program is exempt from the provisions of this Order. The Director shall maintain an environmental protection program to assure compliance with applicable environmental statutes and regulations. The Director and EH-1 shall exchange information and cooperate as appropriate to facilitate exercise of their respective responsibility.

g. Directors of other Headquarters Program Organizations are responsible for implementing the requirements of this Order for all DOE waste generated by their programs until it is transferred to a DOE or licensed storage/disposal site. For all contaminated facilities under their jurisdiction, they are responsible for assuring that their programmatic decisions include waste management considerations, as appropriate, and for implementing the requirements of other applicable DOE Orders for their waste management programs.

h. Office of General Counsel (GC-1) provides legal advice to program organizations regarding DOE waste management and decommissioning activities involving DOE-owned and privately owned sites; renders legal opinion on DOE authority to undertake remedial action and other waste management activities; and renders legal opinions on, and concurs in, program actions to comply with the National Environmental Policy Act, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation, and Liability Act, the Superfund Amendments and Reauthorization Act, and other legal authorities in conjunction with proposed waste management and decommissioning activities.

i. Assistant Secretary, Management and Administration (MA-1) is responsible for providing contractual and business advice to program organizations regarding DOE waste management activities, including use of DOE management and operating contractors in such activities.

j. Heads of Field Organizations are responsible for all activities that affect the treatment, storage, or disposal of waste in facilities under their jurisdiction regardless of where the waste is generated. Heads of field organizations with treatment, storage or disposal facilities responsibility have the authority for establishing waste management requirements at that facility (e.g., setting waste acceptance criteria, waste certification, verification of contents of waste shipped or to be shipped, concurring in waste reduction plans). In addition, they are responsible for assuring that the day-to-day waste management and surplus facility

operations at their sites are conducted in compliance with the requirements of this Order and comply with all applicable Federal, State, and local statutes. Specific responsibilities include the following:

(1) Preparing annual updates of the Waste Management Plans for all operations under their purview according to the format in the Waste Management Plan Outline, Chapter VI. These Plans shall be submitted in December of each year and be distributed to DP-12, EH-1, and other appropriate Headquarters organizations for review and comment.

(2) Preparing supplements to this Order that identify specific detailed requirements for waste management practices and procedures conducted at their sites.

(3) Overseeing fiscal responsibility for transporting waste and establishing of fees to recover the incremental costs for storage and disposal of DOE waste at their sites.

(4) Establishing waste acceptance criteria and reviewing waste minimization plans of other field organization's facilities that generate radioactive, hazardous, or mixed waste that will be treated, stored or disposed of at facilities under their purview.

(5) Auditing any waste generating organization that ships waste to their sites for treatment, storage, or disposal to assure compliance with established waste acceptance criteria.

(6) Maintaining environmental, safety, and health programs for all DOE waste management operations under their purview.

(7) Managing contaminated facilities under their purview according to the requirements of this Order and guidance provided by Headquarters program offices, providing program secretarial officers with the necessary characterizational and engineering data for contaminated facilities, and developing site-specific priorities, schedules, and costs for remedial actions.

(8) Assuring that the requirements of the Order, applicable to contractors and subcontractors whose contracts fall within the scope of the Order, are properly reflected in the contract document.

(9) Defining and assuring that required quality assurance activities are established and implemented for all waste management activities under their purview, pursuant to the requirements of DOE 5700.6B and reporting unusual occurrences pursuant to the requirements of DOE 5000.3.

(10) Providing information, as requested, to the Integrated Data Base Program, Oak Ridge National Laboratory, for all types of waste under

their purview, including: high-level waste; transuranic waste; low-level waste; naturally occurring and accelerator produced radioactive material; mixed waste; and wastes from decommissioning activities (see Attachment 1, page 3, paragraph 23).

k. Manager of Albuquerque Operations Office is responsible, in addition to the responsibilities identified in paragraph 8j, for use of certified packaging, standard containers, transportation, waste acceptance criteria, and all other aspects related to transuranic waste emplacement at the Waste Isolation Pilot Plant. Within the Albuquerque Operations Office, a standing committee, the Waste Isolation Pilot Plant-Waste Acceptance Criteria Certification Committee, is responsible for review, audit, and approval of generator transuranic waste certification programs and activities. The Manager of the Albuquerque Operations Office, as Head of the Waste Isolation Pilot Plant project office, also has responsibility for the design, construction, technology development, and operational activities leading to permanent isolation of transuranic waste from the biosphere.

9. EXEMPTIONS. Exemptions from the requirements of this Order may be granted only with the approval of DP-12 in consultation with EH-1. New or alternate waste management practices that are based on appropriate documented safety, health protection, and economic analyses may be proposed by field organizations and adopted with the approval of DP-12 and EH-1.

10. IMPLEMENTING PROCEDURES AND REQUIREMENTS. Within 6 months of the date of issuance of this Order, Heads of Field Elements shall prepare and submit to appropriate Headquarters program organizations an implementation plan describing schedules, costs, and quality assurance activities for compliance with the requirements of this Order with copies to EH-1 for review and comment. Specific guidance for the plan will be issued by DP-12 under separate cover. Thereafter, the status of compliance with the requirements of this Order shall be reported to the appropriate Headquarters program organization in the annual update of the Waste Management Plans.

11. CLEARANCE UNDER THE PAPERWORK REDUCTION ACT OF 1980. This directive has been determined to contain information collections under the provisions of 5 CFR 1320, "Controlling Paperwork Burdens on the Public." The Office of Management and Budget (OMB) has issued a clearance to the Department (OMB No. 1910-0900) for these information collections.

BY ORDER OF THE SECRETARY OF ENERGY:

LAWRENCE F. DAVENPORT
Assistant Secretary
Management and Administration

REFERENCES

1. DOE 1332.1A, UNIFORM REPORTING SYSTEM, of 10-15-85, establishes the content and format of plans and reports to be obtained from the Department's contractors and stipulated as a contract requirement.

2. DOE 1430.1A, MANAGEMENT OF THE DEPARTMENT'S SCIENTIFIC AND TECHNICAL INFORMATION, of 9-10-86, which establishes the policy that scientific and technical information developed during work supported by DOE shall be promptly and fully reported to the Technical Information Center (MA-28), located in Oak Ridge, Tennessee, for inclusion in the Department's information data base.

3. DOE 1540.1, MATERIALS TRANSPORTATION AND TRAFFIC MANAGEMENT of 5-3-82, establishes the Department's policies for management of materials transportation activities.

4. DOE 1540.2, HAZARDOUS MATERIAL PACKAGING FOR TRANSPORTATION ADMINISTRATIVE PROCEDURES of 9-30-86, establishes administrative procedures for the certification and use of radioactive and other hazardous materials packaging by the Department of Energy.

5. DOE 2110.1, PRICING OF DEPARTMENTAL MATERIALS AND SERVICES of 2-16-84, which establishes the Department's policy for establishing prices and charges for materials and services provided to outside persons and organizations.

6. DOE 4300.1B, REAL PROPERTY AND SITE DEVELOPMENT PLANNING of 7-1-87, establishes Department policies and procedures for planning the development and utilization of sites and their facilities and for the acquisition, use, inventory, and disposal of real property or interests therein.

7. DOE 4700.1, PROJECT MANAGEMENT SYSTEM, of 3-6-87, establishes the DOE Project Management System (PMS), provides implementing instructions, formats and procedures and sets forth requirements which govern the development, approval and execution of DOE's outlay program acquisition as embodied in the PMS.

8. DOE 5000.3, UNUSUAL OCCURRENCE REPORTING SYSTEM of 11-7-84, establishes the Department's policy and provides instructions for reporting, analyzing, and disseminating information on programmatically significant events.

9. DOE 5400.2, ENVIRONMENTAL COMPLIANCE ISSUE COORDINATION, of 8-13-87, establishes DOE requirements for coordination of significant environmental compliance issues.

10. DOE 5440.1C, NATIONAL ENVIRONMENTAL POLICY ACT of 4-9-85, establishes the Department's policy for implementation of the National Environmental Policy Act of 1969 (Public Law 91-190).

11. DOE 5480.1B, ENVIRONMENTAL SAFETY, AND HEALTH PROGRAM FOR DEPARTMENT OF ENERGY OPERATIONS of 9-23-86, establishes an overall framework of program requirements for safety, environmental, and health protection, including criteria for radiation exposure and radioactive effluent releases for operating facilities and sites.

12. DOE 5480.3, SAFETY REQUIREMENTS FOR THE PACKAGING AND TRANSPORTATION OF HAZARDOUS MATERIALS, HAZARDOUS SUBSTANCES AND HAZARDOUS WASTES, of 7-9-85, establishes requirements for the packaging and transportation of hazardous materials, hazardous substances, and hazardous wastes.

13. DOE 5481.1B, SAFETY ANALYSIS AND REVIEW SYSTEM of 9-23-86, establishes uniform requirements for the preparation and review of safety analyses of DOE operations.

14. DOE 5482.1B, ENVIRONMENT, SAFETY AND HEALTH APPRAISAL PROGRAM of 9-23-86, establishes an environment safety and health appraisal program for DOE.

15. DOE 5484.1, ENVIRONMENTAL, SAFETY, AND HEALTH PROTECTION INFORMATION REPORTING REQUIREMENTS of 2-24-81, establishes requirements and practices for reporting environmental, health, and safety information for DOE operations.

16. DOE 5700.6B, QUALITY ASSURANCE of 9-23-86, sets forth principles and assigns responsibilities for establishing, implementing, and maintaining programs of plans and actions to assure quality achievement in the Department's programs.

17. DOE 6430.1, GENERAL DESIGN CRITERIA of 12-12-83, establishes general design criteria for use in acquisition of the Department's facilities and to establish responsibilities and authorities for the development and maintenance of those criteria.

18. WIPP-DOE-069, rev. 2, of 9-85, "Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant" of 9-81, as updated, specifies basic requirements for disposal of contact-handled and remote-handled transuranic waste at the Waste Isolation Pilot Plant. Copies of this and other DOE Waste Isolation Pilot Plant reports may be obtained from the Albuquerque Operations Office.

19. WIPP-DOE-120, rev. 1, of 1-83, "Quality Assurance" establishes the Quality Assurance requirements to ensure that each site's transuranic waste certification program will perform satisfactorily.

20. WIPP-DOE-157 rev. 1, of 9-85, "Data Package Format for Certified Transuaranic Waste for the Waste Isolation Pilot Plant" specifies the arrangement of data which are required to be reported to the Waste Isolation Pilot Plant for transuranic waste to be received.

21. DOE/LLW-63T of 9-87, "Guidance for Conduct of Waste Management Systems Performance Assessment" provides information on meeting the systems performance requirement of Chapter III 3b(2) of DOE 5820.2A.

22. DOE-JIO-025 of 9-87, "Comprehensive Implementation Plan for the DOE Defense Buried Transuranic-Contaminated Waste Program," describes long term management alternatives for all DOE sites with buried transuranic waste.

23. DOE/RW-0006, rev. 3, "Integrated Data Base for 1987: Spent Fuel and Radioactive Waste Inventories, Projections, and Characteristics" of 9-87, with annual updates, summarizes data in the Integrated Data Base program on all domestic spent fuel and radioactive waste. Copies may be obtained from the Office of Nuclear Energy, Germantown, or the Technical Information Center, Oak Ridge.

24. DOE/DP/0020/1 "An Evaluation of Commercial Respository Capacity for the Disposal of Defense High Level Waste," of 6-85, evaluates the use of civilian repository capacity for the disposal of high level waste resulting from Defense activities, and provided to the President as one analytical input for his evaluation as required under the Nuclear Waste Policy Act.

25. Nuclear Waste Policy Act of 1982, as amended, (Public Law 97-425) provides for the development of repositories for the disposal of high-level waste and spent nuclear fuel.

26. Uranium Mill Tailings Radiation Control Act of 1978 (Pubic Law 95-604) establishes national policy for control of uranium mill tailings.

27. Energy Reorganization Act of 1974 (Public Law 93-438), in Section 202, assigns licensing and related regulatory authority to the Nuclear Regulatory Commission for facilities authorized for the express purpose of long-term storage of defense high-level waste.

28. Department of Energy National Security and Military Applications of Nuclear Energy Authorization Act of 1980 (Public Law 96-164), Section 213(a) authorizes the Waste Isolation Pilot Plant.

29. Low-Level Radioactive Waste Policy Amendments Act of 1985 (Public Law 99-240) makes the Federal Government responsible for disposal of commercially generated greater than class C waste as defined in Section 3(b)(1)(D) of the Act.

30. Resource Conservation and Recovery Act of 1976, as amended, (Public Law 94-580) establishes safe and environmentally acceptable management practices for solid wastes.

31. Comprehensive Environment Response, Compensation, and Liability Act of 1980, as amended, (Public Law 96-510) to provide for liability, compensation, cleanup, and emergency response for hazardous substances released into the environment, and the cleanup of inactive hazardous waste disposal sites.

32. The Superfund Amendments and Reauthorization Act of 1986 (Public Law 99-270) provides for a fund (Superfund) which may be utilized by the Environmental Protection Agency, State, and local governments to clean up hazardous waste sites listed on the National Priorities List.

33. National Environmental Policy Act of 1969 (Public Law 91-190) requires the preparation of a statement which considers environmental impacts, alternatives, and resource commitments for any major Federal action that significantly affects the quality of the human environment.

34. Title 5 CFR 1320, Controlling Paperwork Burdens on the Public serves as the implementing regulation for Public Law 96-511, Paperwork Reduction Act of 1980 and directs the identification and clearance of information collections levied on the public, including contractors, State and local government units, and persons who perform services for the Department on an individual basis.

35. Title 10 CFR Part 60, of 2-25-81, Disposal of High-Level Wastes in Geologic Repositories, prescribes rules governing the licensing of the Department of Energy to receive and possess source, special nuclear, and byproduct material at a geologic repository operations area.

36. Title 10 CFR Part 61, of 12-27-82, Licensing Requirements for Land Disposal of Radioactive Waste, establishes technical requirements for the land disposal of commercial low-level waste including site selection, site design, and facility operation and closure.

37. Title 10 CFR Part 71, of 8-5-83, Packaging and Transportation of Radioactive Material, establishes (1) requirements for packaging, preparation for shipment, and transportation of licensed material and (2) procedures and standards for NRC approval of packaging and shipping procedures for fissile material and for a quantity of other licensed material in excess of a Type A quantity.

38. Title 10 CFR Part 962, of 5-1-87, Radioactive Waste; Byproduct Material establishes the policy that all DOE radioactive waste which is hazardous under the Resource Conservation and Recovery Act will be subject to regulation under both the Resource Conservation and Recovery Act and Atomic Energy Act.

39. Title 40 CFR Part 61, of 7-1-87 National Emission Standards for Hazardous Air Pollutants, establishes standards for atmospheric emissions of hazardous air pollutants and radionuclides.

40. Title 40 CFR Part 191, of 9-19-85, Environmental Radioactive Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and transuranic Radioactive Waste, establishes radiation protection standards governing the management and storage of spent nuclear fuel or high-level or transuranic wastes at any disposal facility operated by DOE.

41. Title 40 CFR Part 192, of 1-5-83, Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings, concerns the control of residual radioactive material at designated processing or disposal sites.

42. Title 40 CFR Part 261, of 5-19-80, Identification and Listing of Hazardous Waste identifies those solid wastes that are subject to regulation as hazardous waste.

43. Title 40 CFR 262, of 5-19-80, Standards Applicable to Generators of Hazardous Waste, establishes manufacturing, packaging, labeling, record keeping, and reporting requirements for generators of hazardous waste.

44. Title 40 CFR Part 263, of 5-19-80, Standards Applicable to Transporters of Hazardous Waste, establishes manufacturing, record keeping, spill reporting and cleanup requirements for transporters of hazardous waste.

45. Title 40 CFR Part 264, of 5-19-80, Standards for Owners and Operators of Hazardous Waste Treatment, Storage and Disposal Facilities, establishes minimum national standards defining the acceptable management of hazardous waste.

46. Title 40 CFR Part 265, of 5-19-80, Interim Status Standards for Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities, establishes minimum national standards that define the acceptable management of hazardous waste during the period of interim status and until certification of final closure.

47. Title 49 CFR Parts 100-178, of 10-1-86, Other Regulations Relating to Transportation: Chapter I-Research and Special Programs Administration, Department of Transportation, prescribes the requirements of the DOT governing the transportation of hazardous material and the manufacture and testing of packaging and containers.

48. ANSI/ASME NQA-1 "American National Standards Institute/American Society of Mechanical Engineers Nuclear Quality Assurance-1," sets forth requirements for the establishment and execution of quality assurance programs for the design, construction, operation, and decommissioning of nuclear facilities.

49. Atomic Energy Act of 1954, as amended 42 U.S.C. § § 2011-2292 (1982) which authorizes and directs the Atomic Energy Commission to produce special nuclear material in its own facilities to produce atomic weapons or atomic weapons parts and to research and develop military applications of atomic energy.

50. Nuclear Waste Policy Amendments Act of 1987 (part of the Budget Reconciliation Act for FY 1988 Public Law 100-203), of December 22, 1987, streamlines and focuses the high level waste management program established by the Nuclear Waste Policy Act.

DEFINITIONS

1. Below Regulatory Concern. A definable amount of low-level waste that can be deregulated with minimal risk to the public.

2. Buffer Zone. The smallest region beyond the disposal unit that is required as controlled space for monitoring and for taking mitigative measures, as may be required.

3. Byproduct Material. (Attachment 1, pages 4 and 5, paragraphs 38 and 49.)

   a. Any radioactive material (except special nuclear material) yielded in, or made radioactive by, exposure to the radiation incident or to the process of producing or utilizing special nuclear material. For purposes of determining the applicability of the Resource Conservation and Recovery Act to any radioactive waste, the term "any radioactive material" refers only to the actual radionuclides dispersed or suspended in the waste substance. The nonradioactive hazardous waste component of the waste substance will be subject to regulation under the Resource Conservation and Recovery Act.

   b. The tailings or waste produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content. Ore bodies depleted by uranium solution extraction operations and which remain underground do not constitute "byproduct material."

4. Certified Waste. Waste that has been confirmed to comply with disposal site waste acceptance criteria (e.g., the Waste Isolation Pilot Plant-Waste Acceptance Criteria for transuranic waste) under an approved certification program.

5. Closure.

   a. Operational Closure. Those actions that are taken upon completion of operations to prepare the disposal site or disposal unit for custodial care, (e.g., addition of cover, grading, drainage, erosion control).

   b. Final Site Closure: Those actions that are taken as part of a formal decommissioning or remedial action plan, the purpose of which is to achieve long-term stability of the disposal site and to eliminate to the extent practical the need for active maintenance so that only surveillance, monitoring, and minor custodial care are required.

6. Contact-Handled Transuranic Waste. Packaged transuranic waste whose external surface dose rate does not exceed 200 mrem per hour.

7. Decommissioning. Actions taken to reduce the potential health and safety impacts of DOE contaminated facilities, including activities to stabilize, reduce, or remove radioactive materials or to demolish the facilities.

8. Decontamination. The removal of radioactive contamination from facilities, equipment, or soils by washing, heating, chemical or electrochemical action, mechanical cleaning, or other techniques.

9. Department of Energy Waste. Radioactive waste generated by activities of the Department (or its predecessors), waste for which the Department is responsible under law or contract, or other waste for which the Department is responsible. Such waste may be referred to as DOE waste.

10. Disposal. Emplacement of waste in a manner that assures isolation from the biosphere for the foreseeable future with no intent of retrieval and that requires deliberate action to regain access to the waste.

11. Disposal Facility. The land, structures, and equipment used for the disposal of waste.

12. Disposal Site. That portion of a disposal facility which is used to dispose of waste. For low-level waste, it consists of disposal units and a buffer zone.

13. Disposal Unit. A discrete portion (e.g., a pit, trench, tumulus, vault, or bunker) of the disposal site into which waste is placed for disposal.

14. DOE Reservation. A location consisting of a DOE-controlled land area including DOE-owned facilities (e.g., the Oak Ridge Reservation) in some cases referred to as a Site, such as the Nevada Test Site, the Hanford Site; or as a Laboratory, such as the Idaho National Engineering Laboratory; or as a Plant, such as Rocky Flats Plant; or as a Center, such as the Feed Materials Production Center.

15. Free Liquids. Liquids which readily separate from the solid portion of a waste under ambient temperature and pressure.

16. Engineered Barrier. A man-made structure or device that is intended to improve the performance of a disposal facility.

17. Hazardous Wastes. Those wastes that are designated hazardous by EPA regulations (40 CFR 261).

18. High-Level Waste. The highly radioactive waste material that results from the reprocessing of spent nuclear fuel, including liquid waste produced directly in reprocessing and any solid waste derived from the liquid, that contains a combination of transuranic waste and fission products in concentrations requiring permanent isolation.

19. Institutional Control. A period of time, assumed to be about 100 years, during which human institutions continue to control waste management facilities.

20. Low-Level Waste. Waste that contains radioactivity and is not classified as high-level waste, transuranic waste, or spent nuclear fuel or 11e(2) byproduct material as defined by this Order. Test specimens of fissionable material irradiated for research and development only, and not for the production of power or plutonium, may be classified as low-level waste, provided the concentration of transuranic is less than 100 nCi/g.

21. Monitoring. The making of observations and measurements to provide data to evaluate the performance of a waste management operation.

22. Mixed Waste. Waste containing both radioactive and hazardous components as defined by the Atomic Energy Act and the Resource Conservation and Recovery Act, respectively.

23. Natural Barrier. The physical, chemical, and hydrological characteristics of the geological environment at the disposal site that, individually and collectively, act to retard or preclude waste migration.

24. Naturally Occurring and Accelerator Produced Radioactive Material. Any radioactive material that can be considered naturally occurring and is not source, special nuclear, or byproduct material or that is produced in a charged particle accelerator.

25. Near Surface Disposal. Disposal in the upper 30 meters of the earth's surface, (e.g. shallow land burial).

26. Performance Assessment. A systematic analysis of the potential risks posed by waste management systems to the public and environment, and a comparison of those risks to established performance objectives.

27. Pyrophoric Material. A material which under normal conditions is liable to cause fires through friction, retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious transportation, handling or disposal hazard.

28. Quality Assurance. All those planned and systematic actions necessary to provide adequate confidence that a facility, structure, system, or component will perform satisfactorily and safely in service. Quality assurance includes quality control, which comprises all those actions necessary to control and verify the features and characteristics of a material, process, product, or service to specified requirements.

29. Radioactive Waste. Solid, liquid, or gaseous material that contains radionuclides regulated under the Atomic Energy Act of 1954, as amended and of negligible economic value considering costs of recovery.

30. Remedial Action. Activities conducted at DOE facilities to reduce potential risks to people and/or harm to the environment from radioactive and/or hazardous substance contamination.

31. Remote-Handled Transuranic Waste. Packaged transuranic waste whose external surface dose rate exceeds 200 mrem per hour. Test specimens of fissionable material irradiated for research and development purposes only and not for the production of power or plutonium may be classified as remote-handled transuranic waste.

32. Repository. A facility for the permanent deep geologic disposal of High Level or Transuranic Waste.

33. Spent Nuclear Fuel. Fuel that has been withdrawn from a nuclear reactor following irradiation, but that has not been reprocessed to remove its constituent elements.

34. Storage. Retrievable retention of waste pending disposal.

35. Storage Facility. Land area, structures, and equipment used for the storage of waste.

36. Storage Unit. A discrete part of the storage facility in which waste is stored.

37. Surplus Facility. Any facility or site (including equipment) that has no identified or planned programmatic use and is contaminated with radioactivity to levels that require controlled access.

38. Transuranium Radionuclide. Any radionuclide having an atomic number greater than 92.

39. Transuranic Waste. Without regard to source or form, waste that is contaminated with alpha-emitting transuranium radionuclides with half-lives greater than 20 years and concentrations greater than 100 nCi/g at the time of assay. Heads of Field Elements can determine that other alpha contaminated wastes, peculiar to a specific site, must be managed as transuranic waste.

40. Treatment. Any method, technique, or process designed to change the physical or chemical character of waste to render it less hazardous, safer to transport, store or dispose of, or reduced in volume.

41. Treatment Facility. The specific area of land, structures, and equipment dedicated to waste treatment and related activities.

42. Waste Container. A receptacle for waste, including any liner or shielding material that is intended to accompany the waste in disposal.

43. Waste Management. The planning, coordination, and direction of those functions related to generation, handling, treatment, storage, transportation, and disposal of waste, as well as associated surveillance and maintenance activities.

44. Waste Package. The waste, waste container, and any absorbent that are intended for disposal as a unit. In the case of surface contaminated, damaged, leaking, or breached waste packages, any overpack shall be considered the waste container, and the original container shall be considered part of the waste.

TABLE OF CONTENTS

TABLE OF CONTENTS (CONTINUED)

CHAPTER I

HIGH-LEVEL WASTE

1. PURPOSE. To establish policies and guidelines for managing the Department of Energy's (DOE) high-level waste and any other materials which, because of their highly radioactive nature (level of health risk, longevity of health risk and thermal activity), require similar handling. (Unless demonstrated to the contrary, all high-level waste shall be considered to be radioactive mixed waste and subject to the requirements of the Atomic Energy Act, as amended, and the Resource Conservation and Recovery Act.)

2. POLICY. All high-level waste generated by DOE operations shall be safely stored, treated, and disposed of according to requirements set forth in this Order. Storage operations shall comply with applicable EPA standards and EPA/State regulations. Geologic disposal shall comply with both Nuclear Regulatory Commission regulations and EPA standards.

3. REQUIREMENTS.

   a. Design.

      (1) Requirements for New Facilities.

         (a) Design objectives for new facilities will assure protection of the public and operating personnel from hazards associated with normal high-level waste operations, accident conditions, and the effects of natural phenomena. Other objectives are compliance with DOE policies regarding nuclear safety, quality assurance, fire protection, pollution control, and safeguards and security protection for high-level waste and protection of essential operations from the effects of potential accidents.

         (b) Designs for new storage and treatment facilities shall meet the requirements of DOE 6430.1, applicable EH Orders and 40 CFR 264.

         (c) Designs for new storage facilities shall incorporate features to facilitate retrieval capability.

      (2) Design Review for Existing Facilities. Uniform requirements for the preparation of safety analysis reports for high-level waste operations, detailed in DOE 5481.1B, include the review of existing operational facilities based on current technical criteria. When hazards are identified that should be eliminated, controlled, or mitigated, appropriate upgrading, actions in accordance with paragraph 3a(1) above, shall be identified and implemented according to the requirements of DOE 5481.1B.

b. Storage Operations - Doubly Contained Systems.

(1) Waste Characterization.

(a) Liquid and solidified high-level waste shall be characterized consistent with radiation protection requirements to determine its hazardous components, per 40 CFR 261 and 40 CFR 264. Characterization shall satisfy requirements of paragraph 3b(1)(b) and may reflect knowledge of waste generating processes, laboratory testing results, and/or the results of periodic sampling and analysis. Examples of required information are chemical composition, physical properties, radionuclide concentrations, and pH.

(b) Waste characteristics and compatibility information shall be documented in a safety analysis report (see DOE 5481.1B) and be used as a basis for designing new facilities.

(2) Storage and Transfer Operations.

(a) All new high-level waste handling, transfer, and storage facilities (e.g., tanks, bins, pipelines, and capsules) shall be doubly contained.

(b) Singly contained pipelines may be used routinely for liquid waste that has a total radioactivity concentration of less than 0.05Ci/gal (4.9×10^{11}Bq/m^3). They may be used on a temporary basis for higher activity waste, if appropriate design and administrative controls are in place to mitigate adverse effects from a pipeline failure.

(c) Leaking waste storage systems shall not be used to receive waste unless secondary containment is maintained (e.g., liquid level maintained below leak point) and it can be shown with the support of formal documentation (e.g., Safety Analysis Reports, Operational Safety Requirements, Operating Standards) that temporary operation can be performed without releasing radioactive liquid to the environment.

(d) Secondary containment systems shall be capable of containing liquids that leak into them from the primary system and shall be equipped with transfer capability to retrieve the leaked liquid. Secondary containment systems for solidified high-level waste shall provide for physical isolation of the waste from the environment.

(e) To the extent practical, waste shall be segregated by type (sludge, salt, high activity, and low activity) to make accessibility for future processing easier.

(f) Where required, ventilation and filtration systems shall be provided to maintain radionuclide releases within the guidelines specified in DOE 5481.1B and applicable EH Orders. Ventilation systems shall be provided where the possibility exists for generating flammable and explosive mixtures of gases (e.g., hydrogen/air or organics/air).

(g) Facilities using cathodic corrosion protection systems shall include engineered features that protect against abnormal conditions such as stray currents or system failure. The cathodic protection systems shall be calibrated annually, and all sources of impressed current shall be inspected and/or tested at least every other month.

(h) Engineering controls shall be incorporated to provide liquid volume inventory data and to prevent spills, leaks, and overflows from tanks or containment systems. Examples are level-sensing devices, liquid level alarms, and maintenance of sufficient freeboard. The high-level waste shall be stored at pressures lower than those of ancillary systems (e.g., cooling water).

(i) Nuclear criticality safety considerations and controls shall be evaluated for normal operations and, before any significant operational changes are made, to protect against an uncontrolled nuclear criticality incident (e.g., dissolution of sludges for removal from tank).

(j) Each facility shall utilize remote maintenance features and other appropriate techniques to minimize personnel radiation exposure in accordance with DOE 5481.1B.

(k) Upon loss and subsequent recovery of normal electrical power, high-level waste transfer equipment shall not have the capability to restart without active operator action.

(3) Monitoring, Surveillance, and Leak Detection.

(a) Monitoring and leak detection capability shall be incorporated in the engineering systems (e.g., liquid level sensing devices and alarms for high-level waste liquid systems) to provide rapid identification of failed containment, and measurement of abnormal temperatures. The following, at a minimum, shall be monitored: temperature; pressure; radioactivity in ventilation exhaust; and liquid effluent streams associated with high-level waste facilities. Where the possibility exists for the generation of flammable and explosive mixtures of gases, monitoring shall be conducted. For facilities storing liquid high-level waste, the following should also be monitored: liquid levels; sludge volume; tank chemistry; condensate and cooling water.

(b) Leak detection systems (e.g., conductivity probes) shall be designed and operated so that they will detect the failure of the primary containment boundary, the occurrence of waste release, or accumulated liquid in the secondary containment system.

(c) A method for periodically assessing waste storage system integrity (e.g., coupons for corrosion testing, photographic and periscopic inspections, leak detectors, liquid level devices) shall be established, documented, and reported as required in the Waste Management Plan.

(d) Electrical monitoring and leak detection devices essential to safe operations shall be provided with backup power, as appropriate, to ensure operability under emergency conditions.

(e) Surface water systems associated with the high-level waste storage area shall be monitored according to applicable National Pollution Discharge Elimination System permits and EH Order requirements.

(f) A system of ground water or vadose zone monitoring wells meeting the Resource Conservation and Recovery Act requirements per 40 CFR 264 shall be installed, as a minimum, around clusters of liquid waste storage tanks.

(4) Contingency Actions.

(a) A tank or secondary containment system from which there has been a leak or a spill to the surrounding soil, or which is otherwise unfit for use, shall be removed from service until conditions can be evaluated fully.

(b) Upon detection of released radioactive materials, steps shall be taken to prevent further migration of the release to soil or surface water. Major contamination in the soil shall be removed or stabilized unless compliance with this requirement would cause greater harm to human health or the environment.

(c) If a release results from a spill and the integrity of the system is not damaged, the system may be returned to service as soon as action to correct the condition is completed.

(d) For emergency situations involving liquid high-level waste, spare capacity with adequate heat dissipation capability shall be maintained to receive the largest volume of liquid contained in any one tank. Adequate transfer pipelines also shall be maintained in operational condition. Interconnected tank farms with adequate transfer capabilities and spare capacity may be considered as a single tank farm for purposes of this requirement.

(e) A schedule and procedure shall be developed for monitoring, surveillance, and calibration checks. The frequency of these activities shall be based on the potential rate of equipment deterioration and the possibility of an environmental or human health incident, assuming that a malfunction from equipment failure or human error is not detected between checks. Schedules, procedures, and performance requirements shall be documented in the operating and maintenance documentation.

(f) Each high-level waste facility shall have response procedures for credible emergencies, as identified in the Safety Analysis Reports.

(5) Training.

(a) Operator training and qualification standards shall be developed and an up-to-date record of training status shall be maintained.

(b) Worker safety training must comply with the requirements of DOE 5480.1B and applicable EH Orders.

(6) Quality Assurance. Consistent with DOE Order 5700.6B, high-level waste operations shall be conducted in accordance with applicable requirements of the American National Standards Institute/American Society of Mechanical Engineers Nuclear Quality Assurance-1 and other appropriate national consensus standards. (See Attachment 1, page 5, paragraph 48).

(7) Waste Treatment and Minimization.

(a) For the purpose of economy and enhancing the safety of high-level waste storage, processing programs shall be developed and implemented at the generating site to reduce the quantity of waste being sent to storage, and techniques (e.g., evaporation) shall be implemented to reduce further the waste volume in storage.

(b) Programs should be developed and implemented to treat high-level waste in storage to prepare it for eventual conversion to suitable disposal forms, as such forms are developed. This may include separation of high-level waste into other waste categories, such as transuranic waste or low-level waste.

(c) The chemistry of liquid high-level waste shall be adjusted to control corrosion within design limits for the storage system.

(d) Treatment reagents shall not be placed in a tank system without proven effective mitigative action if they could cause the tank, its ancillary equipment, or the containment system to rupture, leak, or otherwise fail.

(e) Waste generation and waste management systems that significantly change the chemical and physical forms of the waste shall be technically assessed to assure compatibility and retrievability.

c. Storage Operations - Singly Contained Tank Systems.

(1) Waste Characterization. The contents of singly contained tank systems shall be characterized consistent with radiation protection requirements and the needs associated with safe storage to determine its hazardous components consistent with 40 CFR 261, 40 CFR 264, and State requirements. Characterization may reflect knowledge of waste generating processes, laboratory testing results, and/or the results of periodic sampling and analysis.

(2) Storage and Transfer Operations.

(a) Singly contained tank systems shall not be used to store fresh high-level waste from fuel reprocessing operations except under emergency conditions as determined by the Operations Office Manager.

(b) Storage and transfer operations shall be conducted within the limits defined in the Safety Analysis Reports according to DOE 5481.1B.

(c) Engineered systems shall be incorporated to provide waste volume inventory data, consistent with the nature of the specific waste stored in singly contained tanks. Examples are surface level sensing devices and interstitial liquid level sensing devices.

(d) Singly contained pipelines: (see paragraph 3b(2)(b)).

(e) Where active ventilation is required, systems shall be provided to maintain radionuclide releases at the point of discharge within the guidelines specified in applicable EH Orders for offsite concentrations and DOE 5480.1B for onsite dose commitment considerations.

(f) Nuclear criticality safety (see paragraph 3b(2)(i)).

(g) Each facility shall use remote maintenance features and other appropriate techniques to maintain personnel radiation exposure as low as reasonably achievable.

(h) Electrical power loss (see paragraph 3b(2)(k)).

(3) Monitoring, Surveillance, and Leak Detection.

(a) Monitoring and surveillance capability shall exist to provide liquid volume, waste inventory data, and identification of failed containment.

(b) A method for periodically assessing waste storage tank integrity (e.g., coupons, photographic inspections, leak detectors, liquid level devices) shall be established and documented.

(c) Emergency power (see paragraph 3b(3)(d)).

(d) Monitoring wells (see paragraph 3b(3)(f)).

(4) Contingency Action.

(a) A contingency action plan shall be maintained to respond to spills or leaks and other credible emergencies as identified in the Safety Analysis Reports.

(b) Leak mitigation (see paragraph 3b(4)(b)).

(c) For emergency situations involving pumpable liquid in singly contained tanks, appropriate equipment (e.g., pumps) shall be maintained to provide removal of liquid.

(5) Training. (see paragraphs 3b(5)(a) and (b)).

(6) Quality Assurance. (see paragraphs 3b(6)(a)).

d. Disposal. New and readily retrievable waste shall be processed and the high-level waste fraction disposed of in a geologic repository according to the requirements of the Nuclear Waste Policy Act of 1982 (Public Law 97-425) as amended. Options for permanent disposal of other waste, such as single shell tank waste, shall be evaluated and include such methods as in-place stabilization as well as retrieval and processing, as required for new and readily retrievable waste. Analytic predictions of disposal system performance shall be prepared and incorporated in the National Environmental Policy Act process.

(1) New and Readily Retrievable. New and readily retrievable existing high-level waste shall be processed to a final immobilized form in facilities such as the Defense Waste Processing Facility and the Hanford Waste Vitrification Plant preparatory to permanent disposal in a deep geologic repository.

(a) Waste acceptance specifications and criteria based upon the requirements outlined in 10 CFR 60.113, 10 CFR 60.131(b)(7), 10 CFR 60.135, 10 CFR 71.87, and 40 CFR 191 shall be developed for

high-level waste forms prior to startup of facilities that generate the disposal waste form. Specifications and criteria shall be approved by RW-20 and DP-12 for Defense Programs high-level waste forms and by RW-20 and NE-20 for West Valley Demonstration Project product. As examples, specifications and criteria for the Defense Waste Processing Facility vitrified high-level waste form are documented in DOE/RW-0125; those for the West Valley Demonstration Project high-level waste form are documented in DOE/RW-0136.

(b) Interim storage for solidified high-level waste awaiting transport to the designated geologic repository shall comply with applicable requirements in paragraph 3b.

(2) Other Waste. High-level waste that is not readily retrievable shall be monitored periodically in situ. Field offices shall reevaluate the safety of such waste to determine the need for corrective measures as necessary. Options for permanent disposal of singly contained tank waste shall be evaluated and include such methods as in-place stabilization as well as retrieval and processing, as required for new and readily retrievable waste in paragraph 3d(1).

CHAPTER II

MANAGEMENT OF TRANSURANIC WASTE

1. PURPOSE. To establish policies and guidelines for managing DOE transuranic waste starting with its generation, continuing through closure of the Waste Isolation Pilot Plant, and finally the management of buried transuranic waste as defined in Attachment 1, page 3, paragraph 22. Transuranic wastes that are also mixed wastes are subject to the requirements of the Atomic Energy Act and the Resource Conservation and Recovery Act. Additionally, buried transuranic wastes are subject to the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act, and the Superfund Amendments and Reauthorization Act.

2. POLICY. Transuranic waste shall be managed to protect the public and worker health and safety, as well as the environment, and performed in compliance with applicable radiation protection standards and environmental regulations. Practical and cost effective methods shall be used to reduce the volume and toxicity of transuranic waste.

   a. Transuranic waste shall be certified in compliance with the Waste Isolation Pilot Plant-Waste Acceptance Criteria, placed in interim storage (if required), and sent to the Waste Isolation Pilot Plant.

   b. Transuranic waste that the Department of Energy has determined, with the concurrence of the EPA Administrator, does not need the degree of isolation provided by a geologic repository or, transuranic waste that cannot be certified or otherwise approved for acceptance at the Waste Isolation Pilot Plant, shall be disposed of by alternative methods. Alternative disposal methods shall be approved by DOE Headquarters (DP-12 and EH-1) and shall comply with the National Environmental Policy Act requirements and EPA/State regulations.

3. REQUIREMENTS.

   a. Waste Classification.

      (1) Any material that is known to be, or suspected of being contaminated with transuranium radionuclides shall be evaluated as soon as possible in the generating process, and determined to be either recoverable material, transuranic waste, low-level waste, mixed waste, or non-radioactive trash in order to avoid commingling the various material streams.

      (2) The lower concentration limit for transuranic waste (>100 nCi/g of waste) shall apply to the contents of any single waste package at the time of assay. The mass of the waste container including shielding shall not be used in calculating the specific activity of the waste.

(3) Radioactive wastes with quantities of transuranic radionuclides in concentrations of 100 nCi/g of waste or less shall be considered to be low-level waste, and shall be managed according to the requirements of Chapter III of this Order.

(4) Mixed transuranic waste:

(a) Mixed transuranic waste meeting the requirements of the Waste Isolation Pilot Plant-Waste Acceptance Criteria shall be sent to the Waste Isolation Pilot Plant.

(b) The Data Package prepared by the generators for the Waste Isolation Pilot Plant shall include information on the kinds and quantities of hazardous components contained in a waste package in accordance with applicable Resource Conservation and Recovery Act regulations.

(c) The determination whether the transuranic waste exhibits any hazardous characteristics or contains listed hazardous components may be based on knowledge of the waste generating process when the performance of a chemical analysis would significantly increase the radiation hazard to personnel.

b. Transuranic Waste Generation and Treatment.

(1) Technical and administrative controls shall be directed to reducing the gross volume of waste generated and/or the amount of radioactivity requiring disposal. Transuranic waste reduction efforts shall be based on the implementation of techniques such as process modification, process optimization, materials substitution, decontamination, assay of suspect waste, and new technology development. Volume reduction techniques, such as incineration, compaction, extraction, and shredding, shall be implemented wherever cost effective and practical. Treatment facilities shall be permitted by the appropriate regulatory authority.

(2) Transuranic waste shall be assayed or otherwise evaluated to determine the kinds and quantities of transuranic radionuclides present prior to storage. Additionally, hazardous waste components shall be estimated or analyzed, whichever is appropriate.

(3) Mixed transuranic waste shall be treated, where feasible and practical, to destroy the hazardous waste component.

(4) Transuranic waste that is classified for security reasons shall be treated to remove or destroy the classified characteristic(s) prior to certification. Declassification should be performed by the generator.

c. Transuranic Waste Certification.

(1) Transuranic waste shall be certified, pursuant to the Waste Isolation Pilot Plant-Waste Acceptance Criteria, placed in interim storage, and sent to the Waste Isolation Pilot Plant when it becomes operational.

(2) Uncertified transuranic waste shall not be sent to the Waste Isolation Pilot Plant except by special permission granted in response to a formal, documented request to the Waste Isolation Pilot Plant-Waste Acceptance Criteria Certification Committee and the Waste Isolation Pilot Plant Waste Operations.

(3) All transuranic waste certification sites shall prepare a certification plan which describes how the waste meets each waste acceptance criterion described in the WIPP-DOE-069 (see Attachment 1, page 3, paragraph 18).

(4) Each certification plan shall define controls and other measures to ensure that each element of the certification plan is performed adequately as described. Requirements for these quality assurance activities are described in the WIPP-DOE-120 (see Attachment 1, page 2, paragraph 19).

(5) Certification plans, including associated quality assurance plans, shall be submitted for review, comment, and approval by the Waste Isolation Pilot Plant-Waste Acceptance Criteria Certification Committee.

(6) The Waste Isolation Pilot Plant-Waste Acceptance Criteria Certification Committee shall submit certification and associated quality assurance plans to the state of New Mexico's Environmental Evaluation Group for review and comment prior to granting formal approval of such plans.

(7) The Environmental Evaluation Groups's comments on certification and associated quality assurance plans shall be resolved between the affected site and the Waste Isolation Pilot Plant-Waste Acceptance Criteria Certification Committee prior to granting formal approval of the plans.

(8) Approved certification and associated quality assurance plans shall be implemented by the generating sites using specific, written operational procedures.

(9) Certification activities conducted under approved plans and procedures shall be audited periodically, in accordance with a written audit program plan on a continuing basis by the Waste Isolation Pilot Plant-Waste Acceptance Criteria Certification Committee. An Environmental Evaluation Group representative may accompany the Waste Isolation

Pilot Plant-Waste Acceptance Criteria Certification Committee audit team as an observer during site audits. The Waste Isolation Pilot Plant-Waste Acceptance Criteria Certification Committee may grant certifying authority to the site following successful completion of an audit.

(10) The Waste Isolation Pilot Plant-Waste Acceptance Criteria Certification Committee shall issue a formal audit report to the responsible field organization following the completion of an audit. The audit report shall describe the activities of the Waste Isolation Pilot Plant-Waste Acceptance Criteria Certification Committee audit team and include a record of any findings, observations, and recommendations. Corrective actions taken as a result of a finding shall be verified on subsequent audits. The Waste Isolation Pilot Plant-Waste Acceptance Criteria Certification Committee shall institute a tracking system to ensure timely resolution of findings, observations, recommendations, and the resultant corrective actions.

(11) Failure to resolve and close out previous audit findings and recommendations or sending noncomplying waste to the Waste Isolation Pilot Plant when judged by the Waste Acceptance Criteria Certification Committee to be a serious violation, shall result in suspension of certifying authority, pending satisfactory resolution.

d. Transuranic Waste Packaging.

(1) Newly generated transuranic waste shall be placed in noncombustible packaging that meets DOT requirements.

(2) All Type A transuranic waste containers shall be equipped with a method to prevent pressure buildup. Acceptable pressure-relief devices include permeable gaskets, vent clips, and filtered vents.

(3) The waste packages shall be marked, labeled, and sealed in accordance with the Waste Isolation Pilot Plant-Waste Acceptance Criteria, EPA, and DOT requirements, as defined in the WIPP-DOE-069, 40 CFR 262, Subpart C, and 49 CFR 172, Subparts D, E, and 49 CFR 173, Subpart I, where applicable, prior to shipping.

e. Temporary Storage at Generating Sites. The following activities shall be performed to assure the safe storage of transuranic wastes consistent with the requirements of applicable Resource Conservation and Recovery Act regulations:

(1) Transuranic waste shall be segregated or otherwise clearly identified to avoid the commingling of transuranic waste streams with high-level waste or low-level waste.

(2) Certified transuranic waste shall not be commingled with noncertified transuranic waste and shall be stored in a manner unlikely to alter its certification status.

(3) Transuranic waste in storage areas shall be protected from unauthorized access.

(4) Transuranic wastes in storage shall be monitored periodically to ensure that the wastes are not releasing their radioactive and/or hazardous constituents.

(5) Transuranic waste storage facilities shall be designed, constructed, maintained, and operated to minimize the possibility of fire, explosion, or accidental release of radioactive and/or hazardous components of the waste to the environment.

(6) Facilities which store transuranic waste shall have a contingency plan designed to minimize the adverse impacts of fire, explosion, or accidental release of hazardous components of the waste to the environment.

(7) Transuranic waste shall be stored in such a way so as to maintain radiation exposures as low as reasonably achievable.

f. Transportation/Shipping to the Waste Isolation Pilot Plant.

(1) Transuranic waste shipments shall comply with the provisions of DOE and DOT regulations, pursuant to DOE 1540.1.

(2) Transuranic waste shipments by truck shall be by a DOE-controlled carrier system. All transuranic waste shall be transported in certified Type B packaging.

(3) Shipping papers shall provide the information required by DOT (49 CFR 172, Subpart C), the Waste Isolation Pilot Plant Data Package (WIPP-DOE-157), and, as necessary, the manifest required by EPA (40 CFR 261, and 262).

(4) Distribution of the shipping papers shall be as follows:

(a) Shipper - one copy (or more);

(b) Carrier - one copy; and

(c) Waste Isolation Pilot Plant - two copies.

A copy of the papers will be returned by the Waste Isolation Pilot Plant to the shipper after emplacement of the waste at the Waste Isolation Pilot Plant.

(5) Appropriate EPA and State authorizations/permits shall be obtained for the transport system, as applicable.

(6) Placarding of shipments shall be carried out, as required by the regulations of DOT (contained in 49 CFR 172, Subpart F).

(7) All shipments of transuranic waste shall be in or on "exclusive use" vehicles, as defined in 49 CFR 173. Shipments shall be made as expeditiously as possible and shall be tracked from origin to destination using a real-time tracking communications system. Deviations from "preferred routes," delays and other irregularities detected by the system shall be investigated by the responsible traffic manager and a report sent to the Waste Isolation Pilot Plant within 90 days.

(8) The Albuquerque Operations Office shall develop a transuranic waste transportation management and operations plan which addresses, but is not limited to, the following considerations:

(a) Communication between transport vehicle and traffic management;

(b) Shipment tracking in transit;

(c) Security;

(d) Emergency notification/response;

(e) Shipment routing;

(f) Shipment notification as appropriate;

(g) Driver training and qualifications;

(h) Vehicle maintenance and inspection;

(i) State surveillance and inspection; and

(j) Inspection and recertification of transport packagings.

g. Interim Storage.

(1) Interim storage sites have been designated for storage of:

(a) Waste certified by off site generators;

(b) Waste certified by on site generators;

(c) Waste certified by interim storage personnel; and

(d) Uncertified waste received from on site and/or off site generators that is awaiting processing and certification.

(2) New interim storage facilities shall be sited, designed, constructed, and operated consistent with the requirements of applicable Resource Conservation and Recovery Act regulations and in a manner which satisfactorily addresses the following considerations at a minimum:

(a) Proximity to ground water and areas of seismic activity or flood plains shall be identified, and potential impacts shall be evaluated.

(b) The facility shall be designed and operated to minimize the run on and run off of precipitation. The run off control system shall provide for collecting and sampling run off, which may come in contact with the waste packages, prior to releasing the water for discharge.

(c) An environmental monitoring system shall be provided to detect any release and migration of major radioactive and hazardous components. Background levels of primary radioactive and hazardous waste components shall be determined.

(d) The storage facility design shall minimize the possibility for the unauthorized entry of persons.

(e) Incompatible wastes types shall be placed in separate packages and stored in segregated areas to prevent accidental ignition or chemical reaction.

(f) Waste storage facilities shall be designed and operated to minimize the exposure of personnel to radiation and chemicals.

(g) The storage facility operator shall inspect or verify routinely the condition of waste packages at the storage site for deterioration that may threaten human health or cause release of hazardous or radioactive components to the environment.

(h) The storage facility operator shall prepare plans that identify and describe how the site will be closed at the end of its active life. These plans shall address sampling, testing, and monitoring for major radioactive and hazardous waste components in soil and groundwater.

(i) Sites that use underground storage tanks for the storage of transuranic waste shall comply with the requirements of the Resource Conservation and Recovery Act, as applicable.

(j) Permits shall be acquired, as necessary, from appropriate regulatory entities for all the interim storage facility activities listed above.

(3) Existing interim storage sites shall be reviewed for consistency with the items in paragraph 3g(2). Any necessary corrective actions shall be performed based on a compliance schedule approved by appropriate regulatory authorities.

(4) Certified waste shall be stored in a manner unlikely to alter the certification of the waste package.

(5) Operators of interim storage facilities shall receive data package information (see Attachment 1, page 2, paragraphs 18 and 20) for each waste package from the generator. The operator shall store the waste generator's data and shall use the data to prepare a new Data Package at the time of shipment to the Waste Isolation Pilot Plant.

(6) Certified waste from off site generators does not require additional waste analysis or interim inspection, either upon receipt at the storage site or at the time of shipment to the Waste Isolation Pilot Plant. The generator of the certified waste is responsible for describing the waste form and waste package content.

(7) Waste that has been certified by a generator and shipped to an interim storage site shall be reshipped to the Waste Isolation Pilot Plant by the interim storage site in the following manner:

(a) The generator/certifier shall be identified as the generator/certifier and shipping originator.

(b) The interim storage site shall be identified as the reshipper.

(c) The shipping originator is responsible for certifiability of the waste form, waste package content, waste container procurement documentation, related Data Package information, and proper marking, labeling and placarding of the shipment. The shipping originator is responsible for any problems or discrepancies relating to the above-mentioned items that may occur during shipment to or emplacement at the Waste Isolation Pilot Plant.

(d) The reshipper is responsible for complete data package assembly, transmittal, proper marking, labeling, placarding, verifying the adequacy of the exterior condition of the container (e.g., no significant deterioration, bulging) and for proper shipment loading. The reshipper shall perform radiation dose rate and contamination surveys on each package. The reshipper is responsible for any problems or discrepancies involving the items mentioned above.

(8) The interim storage site is the shipping originator for stored waste certified at that site. Agreements may need to be developed between offsite waste generators and interim storage site operators/certifiers to define clearly their respective responsibilities.

h. Waste Isolation Pilot Plant.

(1) The Waste Isolation Pilot Plant is a defense activity of the DOE for the express purpose of providing a research and development facility to demonstrate the safe disposal of radioactive wastes resulting from defense activities.

(2) After the successful demonstration of the safe disposal of defense transuranic wastes, the Waste Isolation Pilot Plant will be the planned destination for all certified contact-handled and remote-handled transuranic waste, including mixed transuranic waste.

(3) Prior to shipment of waste, the Waste Isolation Pilot Plant shall validate the data package for that waste shipment.

(4) Upon receipt of waste, Waste Isolation Pilot Plant activities shall include, but not be limited to, the following:

(a) Verification of the package or assembly identification numbers against the Data Package;

(b) Measurement of the external radiation dose rate of the package and shipping container;

(c) Verification that contamination levels on the package and shipping container surfaces are within acceptable limits; and

(d) Review and proper processing of all shipping papers and manifests.

(5) During a period of up to 5 years from the first emplacement of waste in the Waste Isolation Pilot Plant, the waste shall be stored retrievably. This phase is called the Operations Demonstration Period.

(6) The decision for or against permanent disposal will be made at the end of the Operations Demonstration Period. If the decision is against using the Waste Isolation Pilot Plant as the repository, the stored waste shall be retrieved, repackaged, if necessary, and handled as directed by DOE. At that time, the Waste Isolation Pilot Plant shall be decontaminated, decommissioned, and closed, per agreement with the State of New Mexico.

(7) If the Waste Isolation Pilot Plant is designated a repository, the underground portion of the Waste Isolation Pilot Plant shall be sealed upon completion of all planned transuranic waste disposal activities. Surface facilities shall be decontaminated and decommissioned, and the Waste Isolation Pilot Plant will be closed, per agreement with the state of New Mexico.

(8) Following closure, the salt tailings will be disposed of in an environmentally acceptable manner and the site shall be returned to its natural state. Waste burial record shall be stored securely, and permanent markers shall be installed to minimize the possibility of future human intrusion.

i. Buried Transuranic-Contaminated Waste.

(1) Alternatives for the long term management of buried transuranic-contaminated waste at inactive DOE waste sites are addressed in Attachment 1, page 3, paragraph 22. The inactive waste sites are located at Idaho National Engineering Laboratory, Los Alamos National Laboratory, Oak Ridge National Laboratory, Savannah River Plant, and the Hanford Site. The program will lead to the closure of each waste site, in compliance with the National Environmental Policy Act requirements, the Comprehensive Environmental Response, Compensation, and Liability Act, the Superfund Amendments and Reauthorization Act, and other applicable DOE, EPA, and State requirements.

(2) Each waste site shall be characterized to include information on types and quantities of radioactive and hazardous chemicals. This information shall be verified by appropriate sampling/analysis/monitoring techniques. The characterization and verification activities will also include determination of waste migration from the burial sites and potential environmental and health impacts.

(3) Each DOE site will develop a closure strategy for the waste site(s), utilizing the waste characterization data. Basic site-closure strategies which could be a combination of (a), (b), and (c) depending on site-specific and regulatory requirements, are as follows:

(a) Leave waste in place with enhanced monitoring.

(b) Leave waste in place, use enhanced confinement or in-situ immobilization techniques, and provide enhanced monitoring.

(c) Retrieve, process, and dispose of the transuranic waste at the Waste Isolation Pilot Plant.

(4) Each DOE site will develop a site closure plan, which will include, as a minimum, the following:

(a) National Environmental Policy Act requirements;

(b) Applicable Federal, State and local regulations-(e.g., DOE, EPA, State);

(c) Permits required;

(d) Selected closure strategy and justification;

(e) A waste retrieval strategy:

1 Methodology for segregating transuranic and low-level waste,

2 Identification of mixed waste components,

3 Certification of transuranic waste for disposal at the Waste Isolation Pilot Plant,

4 Management of low-level waste and mixed waste, and

5 Plans for maintaining exposures as low as reasonably achievable;

(f) Budget requirements by fiscal year;

(g) Schedule for closure strategy completion; and

(h) Post-closure monitoring and controls.

j. Quality Assurance. Consistent with DOE Order 5700.6B, transuranic waste operations shall be conducted in accordance with applicable requirements of the American National Standards Institute/American Society of Mechanical Engineers Nuclear Quality Assurance-1 (see Attachment 1, page 5, paragraph 48) and other appropriate national consensus standards.

2528

CHAPTER III

MANAGEMENT OF LOW-LEVEL WASTE

1. PURPOSE. To establish policies, requirements and guidelines, for managing the Department's solid low-level waste.

2. POLICY.

   a. DOE-low-level waste operations shall be managed to protect the health and safety of the public, preserve the environment of the waste management facilities, and ensure that no legacy requiring remedial action remains after operations have been terminated.

   b. DOE-low-level waste shall be managed on a systematic basis using the most appropriate combination of waste generation reduction, segregation, treatment, and disposal practices so that the radioactive components are contained and the overall system cost effectiveness is maximized.

   c. DOE-low-level waste shall be disposed of on the site at which it is generated, if practical, or if on-site disposal capability is not available, at another DOE disposal facility.

   d. DOE-low-level waste that contains non-radioactive hazardous waste components (mixed waste) shall conform to the requirements of this order, applicable EH Orders, and shall also be regulated by the appropriate regional authorities under the Resource Conservation and Recovery Act.

3. REQUIREMENTS.

   a. Performance Objectives. DOE-low-level waste that has not been disposed of prior to issuance of this Order shall be managed on the schedule developed in the Implementation Plan (See page 7, paragraph 10) to accomplish the following:

      (1) Protect public health and safety in accordance with standards specified in applicable EH Orders and other DOE Orders.

      (2) Assure that external exposure to the waste and concentrations of radioactive material which may be released into surface water, ground water, soil, plants and animals results in an effective dose equivalent that does not exceed 25 mrem/yr to any member of the public. Releases to the atmosphere shall meet the requirements of 40 CFR 61. Reasonable effort should be made to maintain releases of radioactivity in effluents to the general environment as low as is reasonably achievable.

(3) Assure that the committed effective dose equivalents received by individuals who inadvertently may intrude into the facility after the loss of active institutional control (100 years) will not exceed 100 mrem/yr for continuous exposure or 500 mrem for a single acute exposure.

(4) Protect ground water resources, consistent with Federal, State and local requirements.

b. Performance Assessment.

(1) Field organizations with disposal sites shall prepare and maintain a site specific radiological performance assessment for the disposal of waste for the purpose of demonstrating compliance with the performance objectives stated in paragraph 3a.

(2) Each field organization shall, for each DOE reservation within its cognizance, prepare and maintain an overall waste management systems performance assessment supporting the combination of waste management practices used in generation reduction, segregation, treatment, packaging, storage, and disposal. Background and guidance on waste management systems performance assessment is provided in Attachment 1, page 3, paragraph 21.

(3) Where practical, monitoring measurements to evaluate actual and prospective performance should be made at locations as required, within and outside each facility and disposal site. Monitoring should also be used to validate or modify the models used in performance assessments.

c. Waste Generation.

(1) Technical and administrative controls shall be directed to reducing the gross volume of waste generated and/or the amount of radioactivity requiring disposal. Waste reduction efforts shall include consideration of process modification, process optimization, materials substitution and decontamination.

(2) Waste Generation Reduction. All DOE-low-level waste generators shall establish auditable programs (goals, incentives, procedures, and reports) to assure that the amount of low-level waste generated and/or shipped for disposal is minimized.

(3) Waste Segregation. Each DOE-low-level waste generator shall separate uncontaminated waste from low-level waste to facilitate cost effective treatment and disposal.

(4) Waste Minimization. Each DOE-low-level waste generator preparing a design for a new process or process change shall incorporate principles into the design that will minimize the generation of low-level waste.

d. Waste Characterization.

(1) Low-level waste shall be characterized with sufficient accuracy to permit proper segregation, treatment, storage, and disposal. This characterization shall ensure that, upon generation and after processing, the actual physical and chemical characteristics and major radionuclide content are recorded and known during all stages of the waste management process.

(2) Waste characterization data shall be recorded on a waste manifest, as required by paragraph 3m, and shall include:

(a) The physical and chemical characteristics of the waste.

(b) Volume of the waste (total of waste and any solidification or absorbent media).

(c) Weight of the waste (total of waste and any solidification or absorbent media).

(d) Major radionuclides and their concentrations.

(e) Packaging date, package weight, and external volume.

(3) The concentration of a radionuclide may be determined by direct methods or by indirect methods such as use of scaling factors which relate the inferred concentration of one radionuclide to another that is measured, or radionuclide material accountability, if there is reasonable assurance that the indirect methods can be correlated with actual measurements.

e. Waste Acceptance Criteria.

(1) Waste shipped from one field organization to another for treatment, storage or disposal shall be done in accordance with the requirements established by the operations office having responsibility for operations of the receiving facility.

(2) Waste acceptance criteria shall be established for each low-level waste treatment, storage, and disposal facility, and submitted to the cognizant field organization.

(3) Generators of waste shall implement a low-level waste certification program to provide assurance that the waste acceptance criteria for

any low-level waste treatment, storage, or disposal facility used by the generator are met. Generators and facilities receiving the waste are jointly responsible for assuring compliance with waste acceptance criteria. Generators are financially responsible for actions required due to nonconformance.

(4) Generator low-level waste certification programs shall be subject to a periodic audit by operators of facilities to which the waste is sent by the generator.

(5) The waste acceptance criteria for storage, treatment, or disposal facilities shall address the following issues:

(a) Allowable quantities/concentrations of specific radioisotopes to be handled, processed, stored or disposed of;

(b) Criticality safety requirements (waste forms and geometries);

(c) Restrictions regarding low-level waste classified for security reasons;

(d) External radiation and internal heat generation;

(e) Restrictions on the generation of harmful gases, vapors, or liquids in waste;

(f) Chemical and structural stability of waste packages, radiation effects, microbial activity, chemical reactions, and moisture;

(g) Restrictions for chelating and complexing agents having the potential for mobilizing radionuclides; and

(h) Quantity of free liquids.

f. Waste Treatment.

(1) Waste shall be treated by appropriate methods so that the disposal site can meet the performance objectives stated in paragraph 3a.

(2) Waste treatment techniques such as incineration, shredding, and compaction to reduce volume and provide more stable waste forms shall be implemented as necessary to meet performance requirements. Use of waste treatment techniques to increase the life of the disposal facility and improve long-term facility performance, by improved site stability and reduction of infiltrating water, is required to the extent it is cost effective.

(3) The development of large scale waste treatment facilities shall be supported by appropriate the National Environmental Policy Act documentation in addition to the following:

(a) A document shall be prepared that analyzes waste streams needing treatment, treatment options considered and a rationale for selection of proposed treatment processes;

(b) A construction design report including projected waste throughputs and treatment methods, construction and operating cost estimates; and

(c) A Safety Analysis Report.

(4) Operation of waste treatment facilities shall be supported by adequate documentation including the following:

(a) Operation and maintenance procedures;

(b) Personnel training and qualification procedures;

(c) Monitoring and emergency response plans; and

(d) Records shall be maintained for each package of low-level waste that enters and leaves the treatment facility.

g. Shipment.

(1) The volume of waste and number of shipments of low-level waste shall be minimized and the shipments will be conducted based on plans developed by field organizations. Off site shipment of low-level waste shall be in compliance with DOE 1540.1.

(2) Generators shall provide an annual forecast in the third quarter of the fiscal year to the field organizations managing the off-site disposal facility to which the waste is to be shipped.

(3) Generators must receive advance approval from the receiving facility and shall certify prior to shipment that waste meets the receiving facility waste acceptance criteria. The certification program shall be auditable and able to withstand independent review.

(4) Each package of waste must comply with the labeling requirements of DOE 1540.1.

h. Long-Term Storage.

(1) Low-level waste shall be stored by appropriate methods, to achieve the performance objectives stated in paragraph 3a.

(2) Records shall be maintained for all low-level waste that enters and leaves the storage facility, (see paragraph 3m).

(3) The development and operation of a waste storage facility shall be supported by the following documentation (two or more of these may be combined for convenience):

(a) An analysis which identifies the need for the storage facility;

(b) A Construction Design Report, including projected waste planned for storage; construction and operating cost estimates;

(c) A Safety Analysis Report and appropriate National Environmental Policy Act documentation; and

(d) Operational procedures and plans.

(4) Storage of waste to allow for nuclides to decay or storage of wastes until they can be disposed of by approved methods are acceptable.

i. Disposal.

(1) Low-level waste shall be disposed of by methods appropriate to achieve the performance objectives stated in paragraph 3a, consistent with the disposal site radiological performance assessment in paragraph 3b.

(2) Engineered modifications (stabilization, packaging, burial depth, barriers) for specific waste types and for specific waste compositions (fission products, induced radioactivity, uranium, thorium, radium) for each disposal site shall be developed through the performance assessment model (see paragraph 3b(1)). In the course of this process, site specific waste classification limits may be developed if operationally useful in determining how specific wastes should be stabilized and packaged for disposal.

(3) An Oversight and Peer Review Panel of DOE, contractor, and other specialists in performance assessments will be selected by DP-12, with participation by EH-1 and operations office representatives. Through consultation and review, this panel shall ensure consistency and technical quality around the DOE complex in the development and application of performance assessment models that include site specific geohydrology and waste composition.

(4) Disposition of waste designated as greater-than-class C, as defined in 10 CFR 61.55, must be handled as special cases. Disposal systems for such waste must be justified by a specific performance assessment through the National Environmental Policy Act process and with the concurrence of DP-12 for all DP-1 disposal facilities and of NE-20 for those disposal facilities under the cognizance of NE-1.

(5) The following are additional disposal requirements intended either to improve stability of the disposal site or to facilitate handling and provide protection of the health and safety of personnel at the disposal site:

(a) Waste must not be packaged for disposal in cardboard or fiberboard boxes, unless such boxes meet DOT requirements and contain stabilized waste with a minimum of void space. For all types of containers, void spaces within the waste and between the waste and its packaging shall be reduced as much as practical.

(b) Liquid wastes, or wastes containing free liquid, must be converted into a form that contains as little freestanding and noncorrosive liquid as is reasonably achievable, but, in no case, shall the liquid exceed 1 percent of the volume of the waste when the waste is in a disposal container, or 0.5 percent of the volume of the waste processed to a stable form.

(c) Waste must not be readily capable of detonation or of explosive decomposition or reaction at normal pressures and temperatures, or of explosive reaction with water.

(d) Waste must not contain, or be capable of generating, quantities of toxic gases, vapors, or fumes harmful to persons transporting, handling, or disposing of the waste. This does not apply to radioactive gaseous waste packaged as identified in paragraph 3i(5)(e).

(e) Waste in a gaseous form must be packaged at a pressure that does not exceed 1.5 atmospheres at 20°C.

(f) Waste must not be pyrophoric. Pyrophoric materials contained in waste shall be treated, prepared, and packaged to be nonflammable.

(6) Waste containing amounts of radionuclides below regulatory concern, as defined by Federal regulations, may be disposed without regard to radioactivity content.

(7) Disposal Site Selection.

(a) Disposal site selection criteria (based on planned waste confinement technology) shall be developed for establishing new low-level waste disposal sites.

(b) Disposal site selection shall be based on an evaluation of the prospective site in conjunction with planned waste confinement technology, and in accordance with the the National Environmental Policy Act process.

(c) The disposal site shall have hydrogeologic characteristics which, in conjunction with the planned waste confinement technology, will protect the groundwater resource.

(d) The potential for natural hazards such as floods, erosion, tornadoes, earthquakes, and volcanoes shall be considered in site selection.

(e) Site selection criteria shall address the impact on current and projected populations, land use resource development plans and nearby public facilities, accessibility to transportation routes and utilities, and the location of waste generation.

(8) Disposal Facility and Disposal Site Design.

(a) Design criteria shall be established prior to selection of new disposal facilities, new disposal sites, or both. These design criteria shall be based on analyses of physiographic, environmental, and hydrogeological data to assure that the policy and requirements of this Order can be met. The criteria shall be also based on assessments of projected waste volumes, waste characteristics, and facility and disposal site performance.

(b) Disposal units shall be designed consistent with disposal site hydrology, geology, and waste characteristics and in accordance with the National Environmental Policy Act process.

(9) Disposal Facility Operations.

(a) Field organizations shall develop and implement operating procedures for low-level waste disposal facilities that protect the environment, health and safety of the public, and facility personnel; ensure the security of the facility; minimize the need for long-term control; and meet the requirements of the closure/post-closure plan.

(b) Permanent identification markers for disposal excavations and monitoring wells shall be emplaced.

(c) Operating procedures shall include training for disposal facility operating personnel, emergency response plans, and a system of reporting unusual occurrences according to DOE 5000.3.

(d) Waste placement into disposal units should minimize voids between containers.

(e) Operations are to be conducted so that active waste disposal operations will not have an adverse effect on filled disposal units.

j. Disposal Site Closure/Post Closure.

(1) Field organizations shall develop site-specific comprehensive closure plans for new and existing operating low level waste disposal sites. The plan shall address closure of disposal sites within a 5-year period after each is filled and shall conform to the requirements of the National Environmental Policy Act process. Performance objectives for existing disposal sites shall be developed on a case-by-case basis as part of the National Environmental Policy Act process.

(2) During closure and post closure, residual radioactivity levels for surface soils shall comply with existing DOE decommissioning guidelines.

(3) Corrective measures shall be applied to new disposal sites or individual disposal units if conditions occur or are forecasted that could jeopardize attainment of the performance objectives of this Order.

(4) Inactive disposal facilities, disposal sites, and disposal units shall be managed in conformance with the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation, and Liability Act, and the Superfund Amendments and Reauthorization Act, or, if mixed waste is involved, may be included in permit applications for operation of contiguous disposal facilities.

(5) Closure plans for new and existing operating low-level waste disposal facilities shall be reviewed and approved by the appropriate field organization.

(6) Termination of monitoring and maintenance activity at closed facilities or sites shall be based on an analysis of site performance at the end of the institutional control period.

k. Environmental Monitoring.

(1) Each operational or non-operational low-level waste treatment, storage, and disposal facility shall be monitored by an environmental monitoring program that conforms with DOE 5484.1 and, at a minimum, meet the requirements of paragraph 3K(2) through 3K(4).

(2) The environmental monitoring program shall be designed to measure: (a) operational effluent releases; (b) migration of radionuclides; (c) disposal unit subsidence; and (d) changes in disposal facility and disposal site parameters which may affect long-term site performance.

(3) Based on the characteristics of the facility being monitored, the environmental monitoring program may include, but not necessarily be limited to, monitoring surface soil, air, surface water, and, in the subsurface, soil and water, both in the saturated and the unsaturated zones.

(4) The monitoring program shall be capable of detecting changing trends in performance sufficiently in advance to allow application of any necessary corrective action prior to exceeding performance objectives. The monitoring program shall be able to ascertain whether or not effluents from each treatment, storage, or disposal facility or disposal site meet the requirements of applicable EH Orders.

l. Quality Assurance. Consistent with DOE 5700.6B, the low-level waste operational and disposal practices shall be conducted in accordance with applicable requirements of American National Standards Institute/American Society of Mechanical Engineers Nuclear Quality Assurance-1 (See Attachment 1, page 5, paragraph 48) and other appropriate national consensus standards.

m. Records and Reports.

(1) Each field organization shall develop and maintain a record keeping system that records the following: a historical record of waste generated, treated, stored, shipped, disposed of, or both, at the facilities under its cognizance. The data maintained shall include all data necessary to show that the waste was properly classified, treated, stored, shipped, and/or disposed of. The data maintained in the system shall be based on the data recorded on waste manifests.

(2) Waste Manifest. Records shall be kept and accompany each waste package from generator through final disposal. The manifest shall contain data necessary to document the proper classification, and assist in determining proper treatment, storage, and disposal of the waste. Waste manifests will be kept as permanent records. At a minimum, the following data will be included:

(a) Waste physical and chemical characteristics,

(b) Quantity of each major radionuclide present,

(c) Weight of the waste (total of waste and any solidification or absorbent media),

(d) Volume of the waste (total of waste and any solidification or absorbent media), and

(e) Other data necessary to demonstrate compliance with waste acceptance criteria.

CHAPTER IV

MANAGEMENT OF WASTE CONTAINING AEA 11e(2) BYPRODUCT MATERIAL AND NATURALLY OCCURRING AND ACCELERATOR PRODUCED RADIOACTIVE MATERIAL

1. PURPOSE. To establish policies and guidelines for managing DOE waste containing byproduct material, as defined by section 11e(2) of the Atomic Energy Act of 1954, as amended, and Naturally Occurring and Accelerator Produced Radioactive Material.

2. POLICY. DOE waste containing naturally occurring and accelerator produced radioactive material or byproduct material as defined by section 11e(2) of the Atomic Energy Act, as amended, or similarly contaminated residues derived from DOE remedial actions, shall be stored, stabilized in-place, and/or disposed of consistent with the requirements of the residual radioactive material guidelines contained in 40 CFR 192. Small volumes of DOE waste containing 11e(2) byproduct material or naturally occurring and accelerator produced radioactive material may be managed as low-level waste in accordance with the requirements of Chapter III of this Order. If the waste is classified as mixed waste, management also must be in compliance with the requirements of the Resource Conservation and Recovery Act.

3. REQUIREMENTS.

   a. Waste Management.

      (1) Waste covered under this chapter in quantities too large for acceptance at DOE low-level waste disposal sites shall be managed according to the requirements of 40 CFR 192, and disposed of at specially designated DOE sites or tailing disposal sites established under the Uranium Mill Tailings Radiation Control Act of 1978 (Public Law 95-604). These disposal sites should be identified and developed as needed in support of DOE remedial actions, and will normally be located in the State in which the wastes are generated.

      (2) With the approval of the appropriate field organization, small volumes of 11(e) byproduct material and naturally occurring and accelerator produced radioactive material waste may be disposed of at DOE low-level waste sites in accordance with the requirements of Chapter III of this Order.

      (3) All DOE waste containing:

         (a) Naturally occurring and accelerator produced radioactive material mixed with the Resource Conservation and Recovery Act hazardous chemicals shall be managed as hazardous waste under the Resource Conservation and Recovery Act.

(b) Byproduct 11e(2) (or a combination of 11e(2) byproduct and naturally occurring and accelerator produced radioactive material) mixed with the Resource Conservation and Recovery Act hazardous chemicals, shall be managed consistent with both the Resource Conservation and Recovery Act and 40 CFR Part 192.

b. Quality Assurance. Consistent with DOE 5700.6B, waste management practices shall be conducted in accordance with applicable requirements of American National Standards Institute/American Society of Mechanical Engineers Nuclear Quality Assurance-1 (reference 48) and other appropriate national consensus standards.

CHAPTER V

DECOMMISSIONING OF RADIOACTIVELY CONTAMINATED FACILITIES

1. PURPOSE. To establish policies and guidelines for the management, decontamination, and decommissioning of radioactively contaminated facilities under DOE ownership or control.

2. POLICY. Radioactively contaminated facilities for which DOE is responsible shall be managed in a safe, cost-effective manner to assure that release of, and exposure to, radioactivity and other hazardous materials comply with Federal and State standards. Facilities, equipment, and valuable materials shall be recovered and reused when practical.

3. REQUIREMENTS. DOE organizations shall develop and document their programs to provide for the surveillance, maintenance, and decommissioning of contaminated facilities. The decommissioning programs shall be implemented as follows:

   a. General.

      (1) Each field organization shall prepare and maintain a complete list of contaminated facilities both operational and excess under its jurisdiction. A continuous record of jurisdictional program responsibility for all contaminated facilities shall be maintained by the cognizant field organization for use in assigning decommissioning responsibility.

      (2) Operational records (e.g., facility design drawings and modifications, characterization data on contamination levels, prior decontamination activities, and incident reports required by DOE Orders) for all contaminated facilities shall be maintained by the cognizant field organization for use in preparing decommissioning plans.

      (3) Planning for facility decommissioning shall be initiated during the design phase for new facilities and prior to termination of operations for existing operational facilities. Such plans shall consider the 2-year budget cycle to assure adequate funding availability.

      (4) Program offices shall be responsible for placing the facility in a safe storage condition, providing surveillance and maintenance, and decommissioning the facilities under their jurisdiction when they become excess to programmatic needs, or for finding another programmatic sponsor for them. For multiple user facilities, the program office shall determine decommissioning liability for user program offices based on each program's overall contribution to the contamination or some other mutually acceptable basis. This cost sharing formula may be applied when the facility is placed in safe storage or during surveillance and maintenance, when appropriate.

(5) Responsibility for contaminated facilities may be transferred from one program organization to another by mutual agreement of the programs involved. The program organization to which a facility is transferred shall accept full responsibility for surveillance, maintenance, and decommissioning of the facility according to the requirements of this Order. Agreements to transfer facilities for functional purposes shall be in writing and shall identify explicitly the concurrent transfer of responsibility for surveillance, maintenance, and decommissioning.

(6) The DP and NE decommissioning programs exist for the primary purpose of managing and decommissioning the contaminated facilities currently assigned to them. Other contaminated facilities that have no programmatic sponsor, or that are excess to program needs and have a current sponsor, shall be assigned to the DP and NE programs for management and decommissioning with the approval of the program secretarial officers involved or their designees.

(7) Decommissioning expertise gained by DOE and its contractors is available at most major DOE facilities, and should be utilized by DOE programs. A computerized Decommissioning Technology data base is maintained at the Richland Operations Office. Published reports on nuclear facility decommissioning may be obtained from the Remedial Action Program Information Center at Oak Ridge National Laboratory.

b. Facility Design. Facilities in which radioactive or other hazardous materials are utilized shall be designed to simplify decontamination and decommissioning and/or increase the potential for reuse. Features and procedures that simplify and facilitate decommissioning shall be identified during the planning and design phase based upon a proposed decommissioning method or conversion to other use. Examples of features to be incorporated are identified in DOE 6430.1.

c. Post-Operational Activities.

(1) DOE Program organizations shall identify contaminated facilities under their jurisdiction, document the potential for reuse and recovery of materials and equipment, and develop schedules for decommissioning them. Projects consisting of one or more facilities shall be identified as appropriate, and priorities shall be developed based on:

(a) Maintaining employee and public health and safety,

(b) Protection of the environment,

(c) Compliance with the National Environmental Policy Act, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation, and Liability Act,

the Superfund Amendments and Reauthorization Act, and other contractual or legal requirements,

(d) Cost effective program management (e.g., maintaining manpower pools, selecting economical decommissioning alternatives), and

(e) Future site plans.

(2) Program organizations shall assure that, prior to initiation of decommissioning activities, adequate surveillance and maintenance is performed for their surplus facilities to meet applicable radiation protection (DOE 5480.1B), hazardous chemical and safety standards, to maintain physical safety and security, and to reduce potential public and environmental hazards. All high-level waste and stored hazardous materials should be removed by the operator as part of the last operational activities prior to entering into the decommissioning phase.

d. Decommissioning Project Activities.

(1) Characterization. Baseline data for each project shall be collected to support a thorough physical, chemical, and radiological characterization to fulfill the requirements of the National Environmental Policy Act reviews, the Resource Conservation and Recovery Act, and the Comprehensive Environmental Response, Compensation, and Liability Act, the Superfund Amendments and Reauthorization Act preliminary assessment/site investigations, and detailed engineering. The baseline data shall include:

(a) Drawings, photographs, and other records reflecting the as-built and as-modified condition of the facility and grounds;

(b) The condition of all structures, existing protective barriers, and systems installed to ensure public, occupational, and environmental safety;

(c) The type, form, quantity, and location of hazardous chemical and radioactive material from past operations at the site; and

(d) Information on factors that could influence the selection of decommissioning alternatives (safe storage, entombment, dismantlement) such as potential future use, long-range site plans required by DOE 4300.1B, facility condition, and potential health, safety, and environmental hazards.

(2) Environmental Review Process. The Comprehensive Environmental Response, Compensation, and Liability Act, the Superfund Amendments and Reauthorization Act and/or the Resource Conservation and Recovery

Act status of each project shall be identified and a remedial investigation/feasibility study performed if required. Based on the results of the remedial investigation/feasibility study and any additional data deemed necessary by the responsible field organization, an appropriate environmental review shall be performed according to the requirements of the National Environmental Policy Act, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation, and Liability Act, and the Superfund Amendments and Reauthorization Act. Candidate decommissioning alternatives shall be identified, assessed, and evaluated, and a preferred decommissioning alternative selected based on the results of the environmental review.

(3) Engineering. Technical engineering planning for each project shall be conducted during the environmental review process to assure that alternative actions and associated environmental issues are identified and assessed, and to support preparation of environmental documentation. Detailed engineering will be initiated after a preferred alternative is selected. A Decommissioning Project Plan shall be prepared for approval by the appropriate program office in compliance with DOE 4700.1. The Plan shall include the following:

(a) Physical, chemical, and radiological characterizational data or references to such data;

(b) A summary evaluation of decommissioning alternatives for the facility including the preferred alternative;

(c) Plans for meeting requirements from the environmental review process (National Environmental Policy Act, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation, and Liability Act, and the Superfund Amendments and Reauthorization Act) and all necessary permits;

(d) Radiological criteria to be used (modifications, if any, to guidance presented in applicable EH Orders must be approved by the Headquarters program organization and EH-1);

(e) Projections of occupational exposure;

(f) Estimated quantities of radioactive waste to be generated; and

(g) Detailed administrative, cost, schedule, and management information.

(4) Decommissioning Operations.

(a) The decommissioning project shall be conducted in accordance with guidance from Headquarters program offices and the Decommissioning Project Plan. Significant deviations shall be approved by the responsible field organization in consultation with the appropriate program office.

(b) Approval of MA-22 (Office of Project and Facilities Management) shall be obtained before initiating activities to demolish a DOE-owned facility, per the requirements of DOE 4300.1B.

(c) Status reports on project activities shall be prepared in accordance with the requirements of DOE 1332.1A or 4700.1, as appropriate.

(d) Information on waste generation shall be provided to the Integrated Data Base Program, as required.

(e) Decommissioning operations shall be considered a waste generator and shall meet generator requirements contained in the previous chapters of this Order.

(5) Post Decommissioning Activities.

(a) After decommissioning operations have been completed, a final radiological and chemical survey report (or an independent verification survey report, at remote sites) and a project final report shall be prepared. The final report shall include a description of the project, the final status of the property, and the lessons learned from the project.

(b) The responsible field organization shall compile a Project Data Package consisting of, as a minimum: the Record of Completion; the final radiological and chemical survey report; the Project Final Report; and for remote sites, an independent verification survey report, Certification Docket, and appropriate public notices. The Project Data Package shall be retained permanently in the field organization archives.

(c) The responsible program organization shall assure that any necessary long-term maintenance and surveillance or other safety controls are provided for the decommissioned property.

(d) The decommissioned property may be released from DOE ownership according to the requirements of DOE 4300.1B, if the responsible program organization, in consultation with the Office of the Assistant Secretary EH-1, certifies that the property meets

applicable release criteria for residual radioactivity and hazardous chemicals, and the property is identified properly by notation in the legal land records of the local government entity.

(e) The decommissioned property may be reused for other program activities that may or may not involve radioactivity or hazardous chemicals. If appropriate release criteria are not met, the property may be reused for other program activities that may or may not involve radioactivity or hazardous chemicals provided that adequate safety controls are maintained.

e. Quality Assurance. Consistent with DOE 5700.6B, waste management practices shall be conducted in accordance with applicable requirements of American National Standards Institute/American Society of Mechanical Engineers Nuclear Quality Assurance-1 (Attachment 1, page 5, paragraph 48) and other appropriate national consensus standards.

CHAPTER VI

WASTE MANAGEMENT PLAN OUTLINE

1. PURPOSE. To provide guidance on the development and maintenance of a waste management plan for each site that generates, treats, stores, or disposes of DOE waste.

2. DISCUSSION. The Order for radioactive waste management emphasizes accountable operational requirements set forth in a prescriptive style. Each site that generates, treats, stores, or disposes of DOE radioactive waste, or decommissions contaminated facilities, is responsible for complying with these requirements in terms of how operations are conducted and how these activities are documented. The documentation serves as the written word that the actual operations are being conducted within the framework of the Order.

   The primary purpose of the Waste Management Plan is to compile and consolidate an annual report on how waste management operations are conducted, what facilities are being used to manage wastes, what forces are acting to change current waste management systems, and what plans are in store for the coming fiscal year. The scope of the plan includes the management of both radioactive and hazardous constituents in the Department's waste, whether these are separated or mixed. The body of the Waste Management Plan should not include descriptions of Environmental Restoration activities, as this information is provided under a separate program. However, several documents prepared with Environmental Restoration funding may be cited in Attachment VI-1 to the Waste Management Plan; this preserves consistency in accounting for documentation. Also, the Waste Management Plan includes the management of the DOE's liquid low-level waste which is not governed specifically by this Order.

   The waste management plan provides a vehicle to report current waste management practices and plans for the coming year. It serves as the core document in the site's waste management operations and should reference supporting documentation as appropriate. The attachment to the Waste Management plan allows sites to account for major documentation as required by the Order.

3. FORMAT FOR WASTE MANAGEMENT PLANS.

   a. Executive Summary. An Executive Summary is mandatory for each Waste Management Plan.

      (1) As a rule of thumb, limit the length of the executive summary to 10 percent or less of the length of the Waste Management Plan. Summarize the past year in waste management including the principal regulatory/environmental issues and the degree to which planned activities were accomplished.

(2) Provide a forecast of the coming year and discuss project startups, facility modifications, regulatory issues, and the waste management budget.

b. General Site Information.

(1) Organization and Administration. Indicate the DOE field organization(s) and contractor(s) responsible for managing waste treatment, storage and disposal operations; discuss approval authorities, and clarify DOE/contractor interfaces. Include relationships between contractor's operations if multiple contractors are involved.

(a) Use charts to enhance text descriptions of organizational structure. Describe lead responsibilities of functional groups including the organization responsible for preparing this plan.

(b) Show the relationships, in a separate section, between documents that guide and support the waste management program at the site. Identify the organization responsible for maintaining up-to-date copies of all reference documents at the field organization level.

(2) Site Description. Include a brief description of site location, demography size, geographic features, climate, geologic and hydrogeologic conditions, and primary mission where waste management operations are conducted.

c. Radioactive and Mixed Waste Management. This section of the plan describes radioactive and mixed waste management operations at the site and includes descriptions of the waste management systems and facilities, the characteristics of wastes managed, and discussion of the problems, recommendations, and the future direction of the site operations. The top-level divisions of this section should be by waste type; i.e., high-level, transuranic, and low-level. These categories should be subdivided further by waste phase, liquid, solid, or gaseous (where appropriate).

(1) System and Facility Descriptions.

(a) Overview. For each of the categories of waste provide an overview of the systems that treat, store, and dispose of these wastes. Use flowcharts to indicate waste sources, intermediate processing steps, and ultimate disposition of waste streams. Identify which waste streams are classified as mixed waste.

(b) Facility Descriptions. Identify the facilities that comprise the waste management systems according to waste type and waste phase and describe the facilities in the following order: Treatment Facilities; Storage Facilities; and Disposal Facilities. Detailed descriptions of facility operations are not required, but enough explanation should be given to support the discussion of planned

activities. Examples of appropriate information include location maps, radiological and chemical characteristics of waste treated/stored/disposed, facility operating parameters, unique or special equipment used, and status of permitting activities. Include facility layout drawings and flow sheets where appropriate.

(2) Current and Future Plans. This section is used to document the planning efforts at the site and indicate the direction of radioactive and mixed waste management activities. It should be organized to reflect site-specific situations. In general, it should: define problems with, and/or new requirements for, waste management systems; cite specific recommendations and strategy for making improvements; identify actions to achieve compliance with regulations; and discuss plans to modify current waste management systems such as construction of new facilities, plant upgrades, facility decommissioning/closure. Remedial actions should indicate how the findings of system performance assessments were factored into recommendations and plans. They should clearly indicate the driving forces behind their stated plans, such as: to achieve disposal of waste currently in storage; to enhance systems performance; to meet regulatory requirements; and to increase worker protection/safety.

(3) Implementation Requirements. This section is used to document the implementation status by updating the "Implementation Summary Table" from the Implementation Plan. It should present these data in similar tabular format. It should also report progress realized during the past year, remaining actions to complete, remaining costs, and estimated completion dates. In addition it should indicate any variances from original cost and schedule projections in the Implementation Plan, and discuss reasons for variances.

d. Hazardous Waste Management (DP Facilities).

(1) System and Facility Descriptions.

(a) Overview. Provide an overview of the system used to treat, store, and dispose of hazardous wastes at the site. Use flow sheets and location maps where appropriate.

(b) Facility Description. Organize according to treatment facilities, storage facilities, and disposal. Describe the combination of facilities used to manage hazardous wastes at the site and include a discussion of current methods of disposal. Indicate the kinds of hazardous wastes generated and their sources. (Facility drawings and location maps should be included as appropriate.) Indicate status of permitting activities and other actions to achieve compliance with the Resource Conservation and Recovery Act

and the Comprehensive Environmental Response, Compensation, and Liability Act, and the Superfund Amendments and Reauthorization Act.

(2) Current and Future Plans. Indicate recent and planned changes in waste management practice as well as actions to minimize hazardous waste generation; e.g., materials substitution and treatment to render waste nonhazardous. Identify plans for new facility construction, modifications, upgrades, or closures.

e. Schedule and Cost Summary. Show current FY costs and operational schedule for the waste management program. In a separate set of tables, show a 5-year (FY + 4) cost and schedule projection and indicate major milestones to be accomplished during that period.

f. Environmental Monitoring Programs. Describe the status of environmental monitoring that supports waste management operations, with discussion of monitoring installations, media sampled, and constituents analyzed. (This section of the plan should focus on the environmental monitoring systems installed to meet regulatory compliance at the individual waste management facilities. It is not necessary to describe the site-wide monitoring program that reports directly to EH.) Provide descriptions of planned system upgrades and modifications and key these to applicable discussions in paragraphs 3c and d. Include facility maps where appropriate.

g. Related Subjects. Use this section to report on related topics of significant interest to waste management planning efforts at the site. Examples include preparation/review of major National Environmental Policy Act documentation; personnel training; quality assurance; technology demonstrations; and decommissioning projects.

WASTE MANAGEMENT DOCUMENTATION REQUIREMENTS

DISCUSSION. To identify principal documentation requirements as identified, sites are required to list and describe (where appropriate) the waste management documentation indicated below. Each of the following paragraphs refer to specific sections of this Order that require the preparation of waste management documentation. Reporting is limited to documents issued in the previous FY, unless the most recent revision of an existing document was issued earlier. Where possible, this Attachment should retain a standard bibliographical format.

(1) Chapter I - High-Level Waste.

(a) Paragraph 3a. List titles and dates of issue of Safety Analysis Reports. Forecast schedule for preparation and issue date of planned Safety Analysis Reports.

(b) Paragraph 3b(3)(c). List titles and dates of documents supporting the periodic assessment of waste storage tank integrity.

(c) Paragraph 3b(4). Cite documentation of contingency actions of the past year. List schedule for completion of corrective actions.

(2) Chapter II - Transuranic Waste.

(a) Paragraph 3c(3). Cite the Transuranic Waste Certification Plan and date of issue. If not issued, give schedule for preparation.

(b) Paragraph 3q(2)(h). Cite the closure plan for interim storage facilities. If not issued, give schedule for preparation.

(c) Paragraph 3(i). Index major documentation developed under the Buried Transuranic - Contaminated Waste Program. Show schedule for preparation of documents in the current fiscal year.

(3) Chapter III - Low-Level Waste.

(a) Paragraph 3b(1). Cite documentation on radiological performance assessment of disposal facilities. If not issued, provide schedule for preparation in paragraph 3 of the Waste Management Plan.

(b) Paragraph 3e(1). Cite Waste Acceptance Criteria for each low-level waste treatment storage and disposal facility. List anticipated additions to this list for the current fiscal year.

(c) Paragraph 3e(3). Report the status of audits of certification activities by operators of disposal facilities. Report status of follow-up reports.

(d) Paragraph 3g(2). List document(s) forecasting waste to be shipped by generators to off-site disposal facilities.

(e) Paragraph 3i(4)(d). List reports justifying on-site disposal of waste exceeding Class C limits. Such disposal cases anticipated for the next year should be forecast.

(f) Paragraph 3i(8). Cite major National Environmental Policy Act documentation (e.g., Environmental Impact Statement, Environmental Assessment) supporting selection of any new disposal sites. Give schedule of preparation for appropriate documentation for the next year.

(g) Paragraph 3j(1). Cite closure plans for low-level waste disposal sites and dates of issue. Give schedule of preparation for anticipated reports.

(4) Decommissioning of Radioactively Contaminated Facilities.

(a) Paragraphs 3a(1). Cite field organization documentation where the complete listing and the jurisdictional program responsibility for all contaminated facilities is recorded.

(b) Paragraph 3c(1). Cite the post-operational documentation that records the potential for reuse and recovery of materials and equipment and the schedule for decommissioning contaminated facilities.

(c) Paragraph 3d(3). List Decommissioning Project Plans and dates of issue. Show a schedule for preparation of Plans in the current fiscal year.

(d) Paragraph 3d(5). List final radiological and chemical survey reports and project final reports, and show dates of issue. Show anticipated additions to this list for the coming year.

RESTORATION PROCEDURE	INSPECTION OF CONTAINERIZED REFUSE MATERIAL AND DRUMMED RESIDUES	SOP 1-C-604
		SECTION: Waste Management AREA: Plant 1
Authorization: J. T. Grumski per CIO C88-175	Supersedes: NONE	Issue Date: 09-07-89

1.0 PURPOSE

The purpose of this procedure is to provide the steps for the inspection and sampling of containerized waste residues and refuse material.

2.0 APPLICABILITY

This procedure shall apply to containerized waste residues and refuse material located on the Plant 1 pad or designated for the Plant 1 sampling line.

3.0 RESPONSIBILITIES

3.1 The Waste Management Supervisor shall be responsible for the following:

3.1.1 Designating the material to be inspected or sampled.

3.1.2 Supplying the packaging materials.

3.1.3 Coordinating and notifying supporting organizations of assistance as required per this SOP.

3.1.4 Labeling packaged material in accordance with the FMPC Lot Marking and Color-Coding System.

3.1.5 Designating holding areas as specified by this SOP.

3.1.6 Contacting Industrial Hygiene or Radiological Safety to determine the appropriate respiratory protection for the processing performed.

3.1.7 Providing operators with the required respiratory protection.

3.2 Materials Control and Accountability shall be responsible for reconciling and maintaining the inventory records of Plant 1 nuclear waste materials.

3.3 Operators shall be responsible for inspecting and sampling containerized waste residues and refuse material per this SOP.

4.0 DEFINITIONS

4.1 Overpack - Container placed over another container.

4.2 Net Weight - Gross weight, minus the tare weight of the container.

4.3 Respirable Material - Small particles capable of being inhaled.

R - MATERIAL REVISED, ADDED, OR DELETED.

5.0 REFERENCES

5.1 SOP 20-C-902, "Liquid Propane Gas (LPG) Powered Handstackers and Tuggers"

5.2 SOP 1-C-916, "Plant 1 Hoists and Cranes"

5.3 SOP 1-C-904, "Operator Scale Checking in Plant 1"

5.4 SOP 1-C-101, "Sampling Residue and Waste Materials"

5.5 SOP 1-C-804, "Overpacking Deteriorated Containers"

5.6 SOP 20-C-602, "Inspection and Operation of Nilfisk Portable Vacuum Units"

5.7 SOP 20-C-603, "Removal and Replacement of Nilfisk Portable Vacuum Unit Filters and Dust Bag"

5.8 SOP 1-C-602, "Low Level Radioactive Waste (L-LRW) Shipment Preparation"

6.0 INDUSTRIAL HEALTH AND SAFETY REQUIREMENTS

6.1 A defined safety system is not involved.

6.2 Safety glasses with side shields shall be worn unless other eye protection i specified.

6.3 Respiratory protection shall be worn when provided by the supervisor.

6.4 Leather-palm gloves shall be worn while handling drums/containers, operating equipment, and when handling rough, sharp-edged, or contaminated material.

6.5 HEPA type filter vacuum cleaners or a vacuum system approved by Q&S shall be used.

6.6 Face shields shall be worn when removing lids or bungs on containers filled with liquids or during operations where a liquid splash could occur.

6.7 Any circumstance which could have resulted in an intake of radioactive materials by inhalation, ingestion or absorption shall immediately be report to a supervisor. The supervisor shall immediately report the circumstance o possible radioactive materials intake to Radiological Safety for evaluation. The involved employees shall report to Medical Services at the end of their shift to submit a urine sample and again report at the start of their next shift to submit another urine sample.

RESTORATION PROCEDURE	INSPECTION OF CONTAINERIZED REFUSE MATERIAL AND DRUMMED RESIDUES	SOP 1-C-604
		SECTION: Waste Management AREA: Plant 1
Authorization: J. T. Grumski per CIO C88-175	Supersedes: NONE	Issue Date: 09-07-89

7.0 PROCEDURE

7.1 Inspecting Drummed Waste Residues

7.1.1 Check drum for deterioration. If drum is deteriorated, place drum in an overpack per SOP 1-C-804 or position a Griflon bag, or equivalent, over drum and fasten.

7.1.2 Move designated drums to a staging area near Plant 1 sample line.

7.1.3 Perform a scale check per SOP 1-C-904.

NOTE: The supervisor shall specify the scale to be used.

7.1.4 Inspect the barrel grab for damage.

7.1.4.1 If the barrel grab is damaged, notify supervisor of damage.

CAUTION: DO NOT USE DAMAGED BARREL GRAB.

NOTE: The supervisor shall specify the barrel grab/lifting device to be used.

7.1.5 Inspect forklift (used with barrel grab) per SOP 20-C-902.

7.1.6 Using barrel grab attached to forklift, move the drum onto the scale.

7.1.7 Obtain the gross weight of the drum.

WARNING: MAXIMUM WEIGHT OF DRUMS SHALL BE 700 POUNDS FOR A 30 GALLON OVERPACK; 1,200 POUNDS FOR 55 GALLON OVERPACKS, 55 GALLON SINGLEPACK, AND 85 GALLON OVERPACKS. MAXIMUM WEIGHT OF 85 GALLON SINGLEPACKS SHALL BE 1,000 POUNDS.

7.1.8 Complete the "Item Production/Certification/Identification" XX card, Form FMPC-CONT-1945-XX (See Figure 1) except "Package Physical Certification" section of form, if one does not exist.

R - MATERIAL REVISED, ADDED, OR DELETED.

7.0 PROCEDURE (cont.)

7.1.9 Check to ensure that the drum information on the "Item Production/Certification/Identification XX Card is the same as the information marked on the drum. If the card and drum information are not the same, notify supervisor.

NOTE: MC&A shall verify the information is accurate according to inventory records.

7.1.10 Using the barrel grab, move drum from scale to a ventilated sampling station.

WARNING: ENSURE SAMPLING STATION VENTILATION SYSTEM IS IN OPERATION BY CHECKING THE VENTILATION FLOW INDICATOR.

7.1.11 Remove lock ring and lid from the drum.

WARNING: SLOWLY REMOVE BUNG(S) AND LID(S) TO RELEASE POSSIBLE PRESSURE.

7.1.12 Visually inspect drum per items listed in the Package Physical Certification section of the "Item Production/Certification/ Identification XX card, Form FMPC-CONT-1945-XX. Indicate inspection condition on card.

7.1.12.1 If oil is present, notify supervisor.

NOTE: Supervisor shall have drum sampled for waste type determination. Move drum to area specified by supervisor.

NOTE: Do not continue drum inspection process until notified by supervisor.

7.1.12.2 If 1/2 inch or more of free standing liquid is present on the top of the material, move the drum to the designated holding area for additional processing.

7.1.12.3 If less than 1/2 inch of free standing liquid is present on the top of the material, add uncalcined diatomaceous earth to absorb the liquid.

7.1.12.4 If material is dry, loose and respirable, notify supervisor for disposition per SOP 20-C-601.

R - MATERIAL REVISED, ADDED, OR DELETED.

7.0 PROCEDURE (cont.)

7.1.12.5 If material does not apply to the designated FMPC Lot Code description, sample material per SOP 1-C-101. Notify the supervisor for placement of drum in designated holding area.

7.1.13 Install lock ring and lid on drum.

7.1.14 Install seal on lever ring and record seal number on the "Item Production/Certification/Identification" XX card, Form FMPC-CONT-1945-XX (See Figure 1).

7.1.15 Using the barrel grab, move drum to the end of the sample line.

7.1.16 Place drum in a designated overpack per SOP 1-C-804.

7.2 Inspecting Containerized Refuse Material

7.2.1 Place container in designated inspection area.

7.2.2 Remove container lid.

7.2.3 Visually inspect container per items listed in the Package Physical Certification Section of the "Item Production/Certification/ Identification" XX card, Form FMPC-CONT-1945-XX (See Figure 1). Indicate inspection condition on card.

7.2.3.1 If oil is present, follow Step 7.1.12.1.

7.2.3.2 If moisture is found on container, follow Steps 7.1.12.2 and 7.1.12.3.

7.2.3.3 If respirable material is present, follow Step 7.1.12.4.

7.2.3.4 If material present does not apply to FMPC Lot Code description, follow Step 7.1.12.5.

7.2.3.5 If an excessive void space is found, add refuse material per SOP 20-C-601.

7.2.4 Replace lid on container per SOP 1-C-602.

7.2.5 Complete the remaining items on the "Item Production/Certification/ Identification" XX card.

7.2.6 Using the barrel grab, move container to a designated holding area for shipment preparation.

R - MATERIAL REVISED, ADDED, OR DELETED.

8.0 APPLICABLE FORMS

8.1 FMPC-CONT-1945-XX, "Item Production/Certification/Identification"

68

R - MATERIAL REVISED, ADDED, OR DELETED.

RESTORATION PROCEDURE	INSPECTION OF CONTAINERIZED REFUSE MATERIAL AND DRUMMED RESIDUES	SOP 1-C-604
		SECTION: Waste Management AREA: Plant 1
Authorization: J. T. Grumski per CIO C88-175	Supersedes: NONE	Issue Date: 09-07-89

CARD XX **ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION**

P. O. NO.	SOURCE	CLASS	MATERIAL TYPE	LOT SEQUENCE NO.	DATE MO	DAY	YEAR	SHIFT	BADGE NO.	PACKAGE NO.

SEAL NUMBER	SEAL DATE MONTH	DAY	YEAR

WASTE DESCRIPTION AND COMMENTS

PACKAGE TYPE	
PACKAGE SIZE	

PACKAGE PHYSICAL CERTIFICATION	YES	NO
EMPTY CONTAINER AT START		
RUST HOLES OR DENTS		
MATERIAL IS AS CODED		
PROHIBITED MATERIALS		
LIQUIDS IN CONTAINER		
MINIMUM OF VOID SPACE		
PACKAGE SECURED		
DRAIN PLUG SECURED		

PLANT	PROD. MBA
PLANT TO	MBA TO

GROSS WEIGHT
TARE WEIGHT
NET WEIGHT

GENERATOR SIGNATURE

FMPC-CONT-1945-XX (REV 12/9/88)

SUPERVISOR SIGNATURE DATE

ITEM PRODUCTION/CERTIFICATION/IDENTIFICATION
FMPC-CONT-1945-XX
Figure 1

R - MATERIAL REVISED, ADDED, OR DELETED.

RESTORATION PROCEDURE	INSPECTION OF CONTAINERIZED REFUSE MATERIAL AND DRUMMED RESIDUES	SOP 1-C-604
		SECTION: Waste Managem AREA: Plant 1
Authorization: J. T. Grumski per CIO C88-175	Supersedes: NONE	Issue Date: 09-07-89

RECORD OF ISSUE/REVISIONS

PAGE	DATE	REV.NO.	DESCRIPTION AND AUTHORITY
1 thru 8	09-07-89	0	Procedure required to replace CIO C88-175 per Request No. P89-097.

R - MATERIAL REVISED, ADDED, OR DELETED.